BIODIVERSITY ASSESSMENT FOR RUSSIA

Task Order No. 812 under the Biodiversity & Sustainable Forestry (BIOFOR) IQC

USAID Contract No. LAG-I-00-99-00014-00

Authors:
Richard Warner
Eugene Simonov
David Gibson

Submitted to:
USAID/Russia

Submitted by:
Chemonics International Inc.
Washington, D.C.

March 2002

USAID

CHEMONICS

TABLE OF CONTENTS

ACRONYMS

BIOFOR	Biodiversity, Sustainable Forestry, and Climate Change
CAFF	Conservation of Arctic Flora and Fauna
CBD	Convention on Biological Diversity
CDIE	Center for Development Information and Evaluation
CITES	Convention on International Trade in Endangered Species of Fauna and Flora
EMAS	Eco-Management and Audit Scheme
EMS	Environmental Management System
FFS	Federal Forest Service
GDP	Gross Domestic Product
GEF	Global Environment Facility (World Bank)
IQC	Indefinite Quantity Contract
IR	Intermediate Result
ISAR	Initiative for Social Action and Renewal in Eurasia
IUCN	World Conservation Union
NEAP	National Environmental Action Plan
NGO	Nongovernmental Organization
NTFP	Non-Timber Forest Product
ROLL	Replication of Lessons Learned
SCEP	State Committee for Environmental Protection
SO	Strategic Objective
SPNA	System of Protected Natural Areas
TUSRIF	The U.S.-Russian Investment Fund
USAID	United States Agency for International Development
WTO	World Trade Organization
WWF	World Wildlife Fund

Executive Summary

Recognizing that the conservation of natural resources and biodiversity is a major global concern, the U.S. government provides legislative guidelines for the protection of these resources. This biodiversity assessment for Russia addresses the guidelines prescribed in the Foreign Assistance Act (22 CFR 216) and subsequent amendments (Sections 117 and 119, both included in Annex A). Under this component of the Act, USAID Missions in the process of developing new country strategies are required to review biodiversity conservation needs in the host country and to describe how the activities proposed in the new plan meet those needs. USAID/Russia contracted Chemonics International through the Biodiversity, Sustainable Forestry, and Climate Change (BIOFOR) IQC to fulfill this requirement by undertaking a biodiversity assessment for Russia.

The assessment included two in-country missions in the fall of 2001. The assessment team comprised two international specialists in natural resource management and a Russian biodiversity specialist. The team conducted an extensive document review and held numerous interviews with a wide range of government and NGO biodiversity experts in Moscow, Khabarovsk, Vladivostok, and Samara. The team also visited zapovedniks, national parks, and other protected areas to gain first-hand knowledge of the challenges to biodiversity conservation.

The needs for biodiversity conservation are substantial in a country as large and diverse as Russia. They are described in several reports by international NGOs (e.g., WWF 2001) and the Russian government, including the first national report to the Convention on Biological Diversity (SCEP 1997). Sectoral reports, such as the World Bank report on forestry (World Bank 1997), likewise identify major needs for biodiversity conservation. Based on these reports and interviews with experts, the assessment team identified the following biodiversity issues of particular significance for USAID/Russia program planning:

- There is high coincidence between new economic development and areas that are home to endangered biological diversity. The areas of greatest concern stretch across southern Russia, particularly in the northern Caucuses, the steppe and steppe forests of southern European Russia and southern Siberia, and the forests of the southern Russian Far East. Rivers and wetlands in these regions, including the Caspian, Azov, and Black Seas, and the Russian waters of the Pacific, are also greatly threatened. It is in these areas that the need for biodiversity conservation and sustainable development is most urgent.

- A significant part of the Russian economy is dependent on the extraction of biological resources, particularly in Siberia and the Far East. International trade is an important component of the Russian biodiversity challenge, considering the enormous volume of Russian timber and fisheries, and the demand for these products in China and around the Pacific Rim. Unfortunately, many of these resources are being destroyed much faster than they are replaced, leading to economic and social instability, perhaps even international instability, as well as loss of biological diversity. Hence, there is a significant need to

improve the management of biological resources, including sustainable development and protection of unique ecosystems and species.

- Overall, government agencies are not meeting their basic responsibilities with regard to managing the public's natural resources. Federal agencies are apparently reducing their role in managing biodiversity, while regional governments are taking on added responsibilities in this area. However, the overall trend is down, threatening biodiversity and economies dependent on biological resources. Federal agencies retain most of the legal authority pertaining to biological resources, thereby hindering the initiatives of regional and local government agencies. Illegal harvest and export of resources is robbing the government and the people of billions of dollars, and the resource base is being destroyed in many places. This underscores the need to increase the value of biological resources and to ensure that the stewards of the resources (i.e., the government) invest in a way that preserves this value for generations to come.

The assessment team finds that USAID/Russia's proposed programs will contribute to meeting biodiversity conservation needs, as follows:

- Biodiversity will benefit from programs to strengthen eco-friendly businesses. However, additional information is needed on how businesses are using microfinance to ascertain the type or extent of impact these programs may have on biological resources. The team recommends that USAID/Russia evaluate the potential biodiversity effects of programs that promote and help finance businesses in Russia.

- Programs to improve government policies toward businesses have the potential to bring positive changes in biological resource management. For example, think tank activities aimed at strengthening environmental policy and promoting transparency provide a foundation for addressing these issues in the context of biodiversity.

- Environmental programs will help meet biodiversity needs in several ways. Reductions in environmental pollution will benefit biodiversity, particularly in rivers and other aquatic ecosystems. The FOREST project offers several benefits to biodiversity. Its forest fire component contributes to maintaining mature forest ecosystems. Likewise, the forest pest component helps maintain forest ecosystems and minimize the frequency and severity of fires by reducing fuel levels. The ROLL project was favorably viewed by virtually everyone the team met with. This program has provided significant benefits to biodiversity conservation in Russia and has the potential to continue doing so to the extent it targets support to biodiversity conservation NGOs and eco-friendly businesses.

- USAID support to NGOs and public interest research groups will continue to help educate the public about its roles and responsibilities with regard to biodiversity and to increase public involvement in government decision-making.

- Rule of law programs indirectly help meet biodiversity policy needs by strengthening private sector review of environmental policy.

- Local governance programs build local (municipal) government experience in environmental management and public participation in the process.

- By reducing environmental health problems, health programs also provide a cleaner environment for other species.

Over the past 10 years, USAID's overall contribution to Russian biodiversity has been substantial, though under-appreciated. While the assessment team finds that the proposed new programs will contribute to meeting biodiversity needs, the expected contribution will apparently be significantly lower than over the past decade. Starting in 2002, USAID/Russia no longer has a significant, stand-alone biodiversity program. The decline in USAID's biodiversity program is noteworthy given the colossal nature of biodiversity problems and opportunities in Russia, and the importance of biodiversity to the economy.

As an alternative to rebuilding a large, stand-alone biodiversity program, the assessment team has identified activities under USAID's proposed plan that might be modified to help meet significant biodiversity conservation needs in Russia. Moreover, the proposed integration of biodiversity issues into the Mission's general programs is the most promising approach to establishing essential conditions for conservation while meeting the overall objectives of social and economic stability.

The most important recommendation is to build on successful USAID programs in the municipalities by replicating them at the regional level, where they have the greatest opportunity to improve biodiversity conservation and help stabilize societies and economies largely based on biological resource extraction. The components of a regional biodiversity initiative — founded on cross-cutting programs — might address the following:

- Help federal and regional government agencies reconcile the current situation regarding authority over biological resource management, including how revenues are divided and how resource management expenses are met
- Help regional governments prepare land use plans to serve as a foundation for long-range fiscal and programmatic planning, monitoring of resource use, tax base projections, and zoning to support the value of land and resource concessions
- Promote fiscal transparency of the government's biological resource operations and public participation in deciding how resources are managed
- Train enforcement officers, prosecutors, and judges in environmental laws to enhance the skills needed to successfully identify and prosecute offenses against biological resources
- Strengthen regional and local NGOs to help promote transparency and public participation

Regional biodiversity programs might be structured in two regions where USAID already plans to concentrate programs in the next planning cycle: Samara Oblast in the Volga Federal Administrative District and the southern Russian Far East.

SECTION I

Introduction

This biodiversity assessment for Russia addresses legislative guidelines for the protection of natural resources and biological diversity, as prescribed in the Foreign Assistance Act (22 CFR 216) and subsequent amendments (Sections 117 and 119, both included in Annex A). The USAID Russia Mission contracted Chemonics International to undertake biodiversity assessments in Russia through the Biodiversity, Sustainable Forestry, and Climate Change (BIOFOR) IQC.

The scope of work, included in Annex B, required fielding a team to investigate, synthesize, and analyze existing information on the status of biodiversity. The information gathered by the team was used to develop this report, which focuses on:

- Describing Russia's major ecosystems
- Identifying key landscape features and areas important for the conservation of biodiversity
- Describing current and potential threats to biodiversity conservation
- Assessing national conservation policies, strategies, conventions, and protected area management capacities
- Assessing the USAID program's potential impact on biodiversity
- Identifying potential USAID opportunities to support biodiversity conservation

The biodiversity assessments included in-country missions from October 20 to November 3, 2001, and from November 27 to December 8, 2001. The assessment team was led by the following individuals:

- Richard Warner — team leader/natural resources management specialist
- David Gibson — natural resources management specialist/BIOFOR project manager
- Eugene Simonov — Russian biodiversity specialist

The team conducted an extensive document review and held numerous interviews with a wide range of government and NGO biodiversity experts (see Annex C for a list of people contacted). In addition to extensive interviews with stakeholders in Moscow, the team met with NGOs and government institutions, including oblast and krai, in Khabarovsk, Vladivostok, and Samara. Team members also visited the Lazovski Zapovednik and Bolshe-kchekhzirsky Wildlife Refuge, both in the Far East, and Zhigulevsk Zapovednik and Samarskaya Luka National Park, both in

Samara Oblast, where they witnessed first-hand some of Russia's major landscapes and biomes, and deepened their understanding of the challenges to biodiversity conservation.

Due to time constraints, no original research was conducted. Although the team sought to maximize the use of available and accurate quantitative data, the assessment depended largely on secondary research. Two reports were major sources of information for this assessment: 1) *Biodiversity Conservation in Russia*, the first national report of the Russian Federation to the Convention of Biological Diversity (SCEP 1997); and 2) the World Wildlife Fund (2001e) report on conservation investment priorities.

Any opinions presented in this report are those of the authors and do not necessarily reflect the position or policies of USAID/Russia. The authors wish to thank the individuals interviewed in the course of the study, the experts who provided information to the team, and the contributors to the many reports that facilitated this assessment.

SECTION II

Summary of Biodiversity Issues in Russia

This summary focuses on key issues of relevance to the USAID/Russia program, described in detail in the next section. Section IV presents a more in-depth discussion of the status of biodiversity in Russia, and reviews relevant laws and institutions, how they work, and where improvements are most urgently needed.

Terrestrial biological resources in Russia are most diverse and unique in southern Europe, southern Siberia, and the southern Far East. The particularly diverse biota and many endemic and endangered species in the Caucasus Mountains are threatened by changes associated with social unrest and disorganized or uncontrolled forestry and agriculture. The rich biodiversity and endangered species in the deciduous and mixed deciduous-coniferous forests of the Russian Far East are increasingly threatened by timber extraction. Steppe in European Russia has been largely converted to agriculture and some of the few remaining natural lands are at risk of being lost. The Chukote Region of northeastern Russia is unusually rich in endangered species relative to the total number of species in the region.

Exhibit II-1 below illustrates the degree of conflict between development and biodiversity. Indeed, *development is having the most profoundly negative impacts on biodiversity precisely where biodiversity is already endangered and where there is the most to lose*.

Aquatic biodiversity faces unique challenges in Russia. Biological resources dependent on rivers and wetlands in high biodiversity regions are increasingly threatened by unrestrained development, including draining of wetlands for agriculture, dams, overharvesting of fish, and urban and industrial pollution. Marine resources in the Russian Far East are in sharp decline due to unsustainable harvest practices.

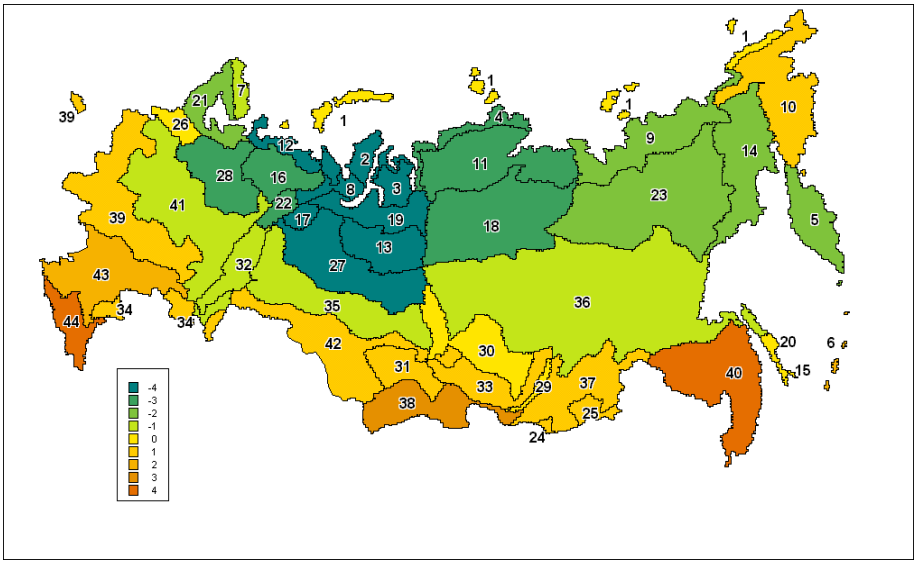


Exhibit II-1. Yellow to orange indicates a high degree of conflict between biodiversity conservation and development, while light to dark green and blue indicates a low degree of conflict. The numbers 1-44 reference the names and descriptions of ecoregions provided in Exhibit IV-2. From WWF (2001e).

Government agencies responsible for protecting and managing biological resources lack the capacity to accomplish many of their most important functions. Government personnel assigned to implement natural resource programs are too few and their compensation is insufficient. As a result, *theft of state-controlled biological resources runs into the billions of dollars annually*.

The federal government's capacity to manage environmental affairs was further weakened with the reorganization that terminated the State Committee for Environmental Protection, along with three other agencies, moving all their responsibilities to the Ministry of the Environment. By contrast, some oblast/krai government biological resource programs are gaining strength, though not fast enough to meet programmatic needs. Laws and policies related to biological resources often provide an adequate framework, but seldom give proper guidance for implementation. Prosecutors and courts are unreasonably lenient toward violators of natural resource laws.

Regional governments have designated more land as "protected areas" than has the federal government. However, protected areas designated by regional government agencies still depend on federal mandates and management. Hence, few of the newly established protected areas have on-site staff, and some are at risk of being permanently lost to agriculture, extractive industries, or other land uses. Management of zapovedniks (strict federal nature reserves) is adequate in many places. However, in response to declining budgets, individual zapovedniks are increasingly required to secure new, non-federal funds to finance core operations.

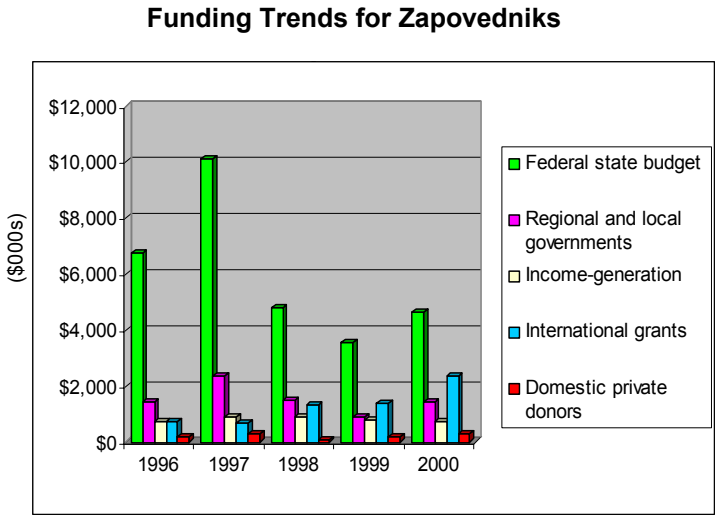


Exhibit II-2. Zapovedniks, Russia's strict nature reserves, are increasingly dependent on outside money to supplement state funding. Data from Ministry of Natural Resources (2000a).

NGOs working on biodiversity conservation and natural resource management are among the oldest and strongest nongovernmental organizations in Russia. These NGOs are particularly effective at the national level and sometimes at the regional level. However, there is a need for more active grassroots participation in civil societies interested in biodiversity protection. *Legislation related to the nonprofit sector is inadequate, making it difficult to establish organizations that can effectively represent the environmental interests of local populations.*

Russia's economy is overwhelmingly dependent on natural resource extraction in general, and substantially dependent on the extraction of biological resources in particular. Despite this dependence, the resource base, particularly forests, fisheries, and steppe ecosystems, is being consumed at clearly unsustainable rates, with inadequate regulatory oversight and little value being recovered and distributed to the public.

SECTION III

Biodiversity Assessment of Proposed USAID/Russia Program

A. Overview of Program

The USAID/Russia program is a complex and dynamic mix of activities designed to support Russia's peaceful transition to a democratic, market-led economy. The nine strategic objectives (SOs) used to accomplish this broad result were represented by more than 80 individual projects in 2001. The complexity of managing such an array of activities is compounded by the socioeconomic differences, the ever-changing political environment, and the vast ecological diversity that spans Russia's 11 time zones.

The program structure of the nine strategic objectives, cross-cutting initiatives, and special initiatives falls under four broad themes, as indicated in the box below.

Outline of USAID/Russia's Strategic Plan

1. Economic Restructuring:

    - SO 1.3 — Strengthen and expand small and medium enterprises
    - SO 1.4 — Market-oriented reforms developed and implemented in selected sectors
    - SO 1.6 — Environmental resources managed more effectively to support economic growth

2. Democratic Transition:

    - SO 2.1 — A more open, participatory society
    - SO 2.2 — Increased confidence in a strengthened rule of law
    - SO 2.3 — More responsive and accountable local governance

3. Social Transition:

    - SO 3.2 — Increased use of improved health and child welfare practices

4. Special Programs:

    - SO 4.1 — Special initiatives
    - SO 4.2 — Cross-cutting strategic objectives

Over the past few years, a substantial component of most programs was directed at selected regional administrative units (i.e., oblasts and krai). Many programs are now implemented at the municipal level, and are increasingly concentrated in European Russia, western Siberia, and the Russian Far East. USAID's revised strategic plan calls for continued focus on the Russian Far East, as well as the Volga Federal Administrative District in western Russia. The latter is one of the seven new super-regions covering a number of krai and oblasts. The broader focus on the Volga District will largely build on the successful programs implemented with USAID support in that region's oblasts. These regional initiatives do not preclude USAID from working elsewhere in Russia. In fact, several programs are national in scope, such as the Replication of Lessons Learned (ROLL) 2000 program, while others address national issues such as federal government policy.

The overall budget of USAID/Russia in 2001 was $162 million, including $97 million under special initiatives (SO 4.1). Two Congressional directives further restrict USAID programs in Russia. First, the U.S. Congress has placed a 60-percent restriction on USAID funding activities at the federal level. Hence, many programs are implemented at the municipal level and occasionally with regional oblast and krai authorities. Second, the U.S. Congress directs a portion of USAID funding to the Russian Far East each year. In 2001, $20 million (i.e, 12 percent of the budget) was dedicated to this region for activities spanning all SOs.

B. Review of Strategic Objectives

Below, we review each SO, focusing on the extent to which the activities proposed by the amended Country Development Strategy address biodiversity conservation needs. Our discussion also identifies opportunities to maximize the positive impacts of the proposed activities on biodiversity.

B1. Economic Restructuring Strategic Objectives

SO 1.3 — Strengthen and expand small and medium enterprises

The overall goal of this SO is to increase opportunities for Russian entrepreneurs to grow their businesses and create jobs. There has been substantial growth in this vital sector in the past two years. The primary indicator for measuring success is the percent of GDP attributed to small and medium enterprises.

Economic Restructuring SOs

- SO 1.3 — Strengthen and expand small and medium enterprises
- SO 1.4 — Market-oriented reforms developed and implemented in selected sectors
- SO 1.6 — Environmental resources managed more effectively to support economic growth

SO 1.3 encompasses three main themes: (a) improving access to financial resources, (b) strengthening business service capacity, and (c) improving the policy environment for investment and successful business incubation. The core activity under this SO provides financing to small, medium, and microenterprises. Investments in larger businesses are made by The United States-Russian Investment Fund (TUSRIF), established by USAID and discussed under SO 4.1. The biodiversity assessment team's primary findings here also apply to TUSRIF.

Approximately 80 percent of microfinancing and small business loans are made to traders to purchase and sell goods, including goods they import from China or elsewhere. The balance of funding and technical assistance supports a broad array of entrepreneurs in the services, agricultural production, and light manufacturing sectors. These programs are implemented by several contractors operating in different regions, which report results and activities quite differently. Loan size runs from a few hundred dollars to $2,000 or more. TUSRIF may invest a million or more dollars in a single business. A consolidated list of entrepreneurs and actual support activities is not centralized.

Biodiversity needs relative to microfinance relate to the extraction, processing, and trade in biological resources. This includes but is not limited to timber, fish, and fish products (i.e., caviar), sea cucumber, crabs, fur and other wild animal parts, berries, flower bulbs, and herbs. For many wild products, there is a need to improve awareness and application of sustained yield

methods, or to reduce collection pressure to ensure sustainable extraction. The reproductive biology of some commercially exploited wild species is not well described and may not enter into a concession structure and management planning. Reducing demand, improving propagation techniques, or introducing alternative products can help reduce pressures on dwindling wild populations.

The extent to which microfinance loans and small business support affect biodiversity does not appear to be significant because most of the financing is directed at trade businesses for urban buyers and involves clothing, household goods, and farm products. However, neither USAID nor the contractors managing finance programs seem aware of the extent to which USAID-funded traders may be involved with the collection and commercialization of wild products. Without a detailed analysis of how loans are being used, it is difficult to ascertain the impact of microfinance programs on biological resources.

One of the newly proposed enterprise activities aims to provide financing to eco-friendly businesses, which by definition should benefit biodiversity. Some small businesses involved with harvest and trade in non-timber forest products (e.g., ginseng, berries, and nuts) and fisheries (e.g., caviar, scallops, and sea cucumber) in the Far East may be benefiting from USAID financial support and could have locally significant impacts on biodiversity. Unfortunately, the financing programs apparently employ few checks or controls to restrict trading in endangered species, such as some species of sturgeon, or to verify that harvest methods are legal and ecologically sound. While the loans for commercializing such commodities may be quickly repaid, the cumulative impact of unchecked harvesting could kill the very industry that lenders seek to expand. Given that there are no reasonable assurances that government authorities can adequately regulate off-take rates, businesses and lenders themselves should be accounting for environmental risks and improved management practices on their own balance sheets.

Biodiversity needs relative to agricultural sector financing are different from those associated with microfinance programs. The most urgent needs in the intensive agricultural zones of southern European Russia include protection of the remaining native ecosystems from conversion to farmland, and protection of river ecosystems. Agricultural credit programs offer unique opportunities for improving long-term management of biological resources in some of Russia's most threatened ecosystems. A significant percentage of the agricultural credit cooperatives supported by USAID operate in southwestern Russia, where most arable and many economically non-arable landscapes were converted from natural habitats to agriculture under the Soviet Union. Natural communities found on the richest soils are now almost completely destroyed. Conversion of the grasslands or "steppe" and seasonal wetlands to farmland occurred throughout nearly all of European Russia, with a predictable reduction in biodiversity. Irrigation systems have radically changed the hydrology of wetlands and rivers. Soil erosion from cropping and runoff from feedlots and dairies has further contributed to the decline of aquatic ecosystems.

In addition, profligate use of extremely toxic agrochemicals over wide expanses has simplified ecological communities through a broad disruption of food chains. The good news here is that the conversion of natural habitat to farmland and the use of agrochemicals has declined considerably in response to the economic hardships and market failures of the past 10 years. Unless deliberate actions are taken to protect and manage biodiversity, reviving the agricultural

economy could increase pressures on the remaining fragments of natural landscape and aquatic ecosystems in Russia's agricultural regions.

Increased financing and market services in the agricultural sector could be used as an incentive to create more rational and profitable farming practices that benefit biodiversity. Agricultural credit programs can be designed to help protect natural areas as well as increase dedicated land and sustainable production systems, including shelterbelts, riparian buffer zones, and conservation easements. However, lending and farm support programs that fail to improve environmental awareness and conservation values are likely to speed the return to old habits that are harmful to biodiversity and threaten to destroy the last examples of the rarest biological resources in southeastern Russia.

The potential impacts of business and agricultural financing on biological resources must be identified. Neither USAID nor the contractors implementing financing programs could readily provide the assessment team with the information and details necessary to assess these impacts. Furthermore, the assessment team found only one example where the loan review process deliberately considered the potential effects of funded activities on biodiversity, though even in this case it was an audit function after the fact. The exception is KMB Bank, which uses European Bank for Reconstruction and Development procedures to filter out applications for projects involving fur bearers, chemicals, and other activities that are controversial or may harm the environment.

Recommendation: The Mission should undertake a scoping exercise to review the potential contribution of business and agricultural financing to biodiversity conservation, and identify activities and management options that enhance conservation and mitigate unnecessary consequences.

Through business associations and advocacy groups, USAID works to improve the regulatory environment for small businesses, as well as the policies and laws governing small and medium enterprises. This includes reducing the administrative burdens of inspections, permits, and licenses, which particularly affect fledgling small businesses. Biodiversity needs relevant to business associations include distribution of information about natural resource regulation, development of environmental guidelines, and associated training to help businesses implement programs that benefit biological resources. The assessment team found that USAID-supported activities do not directly address the business risks associated with unsustainable extraction, nor do they disseminate best practices among businesses working with biological resources.

Business associations should facilitate research and information gathering in collaboration with think tanks, as well as inform their members about changing procedures related to inspection and permits. These associations should especially assist environmentally responsible businesses (see IR 1.6.1 below) in the Russian Far East, where government bureaucracy is particularly burdensome. Business support centers could help streamline environmental operating permits for companies whose policies and practices encourage sustainable management.

SO 1.4 — Market-oriented reforms developed and implemented in selected sectors

The SO 1.4 program supports a policy framework promoting transition to a market economy and the development of a prosperous Russian middle class. The program's objectives include

expanding the tax base and adopting transparent tax policies. Support focuses on assisting Russian think tanks at the federal and regional levels in designing better laws and policies in selected sectors and having them adopted. Targeted sectors include: implementation of World Trade Organization (WTO) protocols; increase in domestic lending from commercial banks; and fiscal transparency at the federal and local levels. SO 1.4 also supports research and policy development related to federal and local tax policy as well as income distribution among government agencies.

There is a need to develop and implement new laws and policies regulating how federal and regional governments share authorities and revenues associated with biodiversity management. As described in Section IV, there is confusion among the various agencies that regulate harvesting, distribute royalties and taxes, and govern the distribution of concessions (fisheries, timber, and non-timber forest products). According to a World Bank report on Russia's forestry sector (1997), "[t]here is a need for transparency in decision making and a clear definition of responsibility for different levels of government, particularly for mechanisms of enforcement."

Some of the problems that need to be addressed are fairly straightforward. For example, the present system leads to conflicts arising from overlapping and incompatible concessions for different forest products. In such cases, the owner of a 10-year lease for fur trapping might see the value of his concession decline as a result of an overlapping concession for timber extraction. Furthermore, native people and other small-scale, traditional users of forest products often find themselves losing their resource base due to large concessions for timber operations. The same likely holds true for near-shore fisheries. Programs under SO 1.4 are not directly addressing the needs of biological diversity, but have the potential to bring about positive changes in terms of how biological resources are managed.

Recommendation: USAID should consider supporting think tanks to conduct an analysis of options for how federal and regional agencies, as well as local communities, divide authority for managing land, resource concessions, and biological resources, including procedures for environmental inspection and enforcement. A program to promote adoption of the most promising options should follow the review.

Other issues are more complicated, such as the relationship between what the government earns from biological resources and where those funds are spent. Inadequate funds are being spent on management, monitoring of biological resources, and enforcement of laws protecting the resources, even though these resources generate substantial surplus revenue. There is clearly a need to increase the level of funds that are reinvested into protection and sustainable management of biological resources. Sources in Moscow and various regions reported that the new Ministry of Natural Resources has significantly reduced the level of effort and funding to monitor biological resources and enforce laws protecting biodiversity. In response to these changes, at least some regional governments have increased staff and funding for these functions, although their authority to act is apparently limited by federal laws and parochial interests. While conventional wisdom suggests that regional governments may be more accountable to their local constituents, cash-strapped local governments may also be more inclined to make decisions based on short-term economic or political motivations.

Recommendation: USAID-supported think tanks and advocacy groups should promote fiscal transparency of federal and regional environmental agencies responsible for biological resources in three to four oblasts and krai. Improved awareness of biological resource valuation and distribution of benefits from different agencies may promote more appropriate levels of investment into renewable resources.

The two preceding recommendations support each other as well as activities under other SOs. New formulas to distribute responsibility for biological resources among federal and local governments might lead to better tax collection and more money spent on resource management and conservation programs. In addition to supporting environmental objectives under SO 1.6, the information developed through these programs can support social transition efforts, including programs encouraging citizen participation in local government decision-making.

SO 1.6 — Environmental resources managed more effectively to support economic growth

USAID's environmental program in Russia will change substantially in the coming years. The first 10 years of USAID's environmental work in Russia were marked by a significant stand-alone biodiversity component, including major programs for Lake Baikal and the Russian Far East. Beyond that, many other USAID programs have supported biodiversity in Russia. For example, NGO support programs have assisted youth NGOs working on the environment, and the ongoing ROLL program has supported many biodiversity-related projects. The extent of USAID's contribution in this area is not fully understood or appreciated in Washington or elsewhere. In fact, USAID's leadership role within the broader environmental movement — and that movement's key role in civil society throughout post-Soviet Russia — is extremely understated. It is an excellent story replete with successes that has yet to be told.

Information on completed activities is dispersed among various USAID offices and partners, several of which no longer receive USAID support. USAID's Center for Development Information and Evaluation (CDIE) has an incomplete listing of activities that affect biodiversity conservation. There is a real danger that the additional diffusion of information and the institutional memory from lessons learned could be lost through staffing changes. Lastly, the high cost of retrieving such information for routine reporting requirements and one-time inquiries suggests that consolidation of USAID's rich and successful experience is required.

Recommendation: Under its amended strategic plan for Russia, USAID should consider undertaking a thorough review of its natural resource portfolio to document its important contribution to biodiversity conservation and sustainable economic development over the past 10 years. Compiling, cataloguing, and anotating electonic copies of all relevant documents would help capture USAID's valuable contributions to biodiversity and the environment.

USAID/Russia's revised strategic plan proposes no specific component to address the current state of biodiversity. This is a remarkable change in a country where so much of the economy is dependent on the extraction of biological resources. A biodiversity program could go a long way toward promoting sustainable economic and social stability in Russia. Currently, biodiversity efforts are dispersed among cross-cutting activities in support of other SOs. Only the ROLL and FOREST projects indirectly address biodiversity conservation in Russia.

In many ways, the diffusion of USAID's response to the state of biodiversity is consistent with other experience: stand-alone biodiversity programs are normally unsustainable and ineffective unless they integrate facets of civil society and economic development.

Below, we describe the proposed activities and intermediate results of the environmental program, and identify opportunities to better address biodiversity.

The proposed primary indicators for SO 1.6 are:

1. Percent of oblasts implementing natural resources management practices
2. Percent of oblasts implementing improved environmental practices

The general program description correctly emphasizes the relationship between biological resources and the Russian economy. The primary indicators hit on an essential point: *success in natural resource management should be sought at the scale of oblast and krai*. However, many programs under this and other SOs focus on urban municipalities rather than targeted assistance to oblasts and krai, while others (e.g., FOREST) are more closely linked to federal agencies.

Recommendation: USAID should consider establishing pilot programs specifically supporting biological resource objectives in three to four oblasts and krai, including significant cooperation with regional government agencies.

The components of a program to develop biodiversity projects at the regional level are woven into our recommendations for SO 1.6 and other SOs. In fact, the recommended initiative is largely built on cross-cutting activities. Furthermore, our summary of recommendations (see subsection D below) describes how the individual proposed programs and cross-cutting biodiversity-related activities might be collected into a coherent and effective program in the Russian Far East and Samara Oblast in the Volga Federal Administrative District.

Following is a review of the intermediate results (IRs) specified under SO 1.6.

IR 1.6.1 — Ecobusinesses are strengthened in targeted sectors

The draft plan proposes supporting ecobusinesses such as ecotourism and non-timber forest product (e.g., fur, berries, herbs, etc) enterprises and their associations, in collaboration with programs under SO 1.3. This type of work is also proposed for the ongoing FOREST project. Goals include improving the business environment for ecobusinesses and facilitating their access to financing. Indicators for this component are the number of associations supporting ecobusinesses and the number of ecobusinesses participating in the associations. Details are not yet available for how this new program will be implemented. However, the assessment team anticipates that these activities will help meet important biodiversity needs, including direct benefits such as improved management of non-timber forest products (NTFPs), and indirect benefits resulting from increased economic value based on natural ecosystems.

The assessment team found a need for this kind of support. People working with NTFPs in the Russian Far East identified three primary factors limiting the growth of their businesses: (a) access to financing; (b) lack of business management experience; and (c) costly bureaucratic barriers that require legal expertise. Hence, the assessment team finds this new activity a welcome addition. At the same time, NTFP harvesting practices must be studied to ensure they use appropriate methods that do not further the loss of biodiversity. Indeed, research, monitoring, and extension of improved harvest technologies would ensure the sustainable use of still-intact natural ecosystems.

Siberian ginseng (*Eleutherococcus senticosus*), which has an established global market, is collected from the wild throughout much of Russia. However, irrational collection methods and over-harvesting are threatening the resource base. Harvesting is currently "illegal." Photo by D. Gibson.

Recommendation: Under the FOREST project, USAID should increase support for research on harvest practices in the NTFP industry and promote use of methods that sustain biological diversity.

The problem of conflicting concession leases must be addressed by any program that promotes ecobusinesses based on the harvest of biological resources in the Russian Far East, including all NTFPs and near-coastal marine fisheries. The long-term success of businesses dependent on the extraction of biological resources requires a stable resource and sustainable harvest. Concession leases are the responsibility of the federal or krai/oblast government agencies, or both. Timber and non-timber product leasing is managed by different agencies with little, if any, coordination. According to interviews with fur and berry producer associations, clear cutting of non-timber concessions occurs frequently, rendering non-timber leases worthless (Alexander Ermolin, personal communication). If problematic management policies related to leases are not resolved, the encroachment of conflicting industries will continue to threaten the success of ecobusinesses that are based on the sustained extraction of biological resources.

Near-coastal fisheries in the Pacific also offer lucrative business opportunities for the sustainable harvest of biodiversity at the small business or community level. Small, community-based businesses, associations, and cooperatives might effectively manage and profit from the sustainable harvest of sea cucumbers and other valuable marine species.

Recommendations under SO 1.4 above propose a review of the problems associated with concession administration to provide NTFP concessionaires with a more predictable business future and ensure that local residents have continued access to dependable resources. The environmental linkages between forestry practices and near-coastal fisheries (e.g., sedimentation of waterways, destruction of spawning, etc) are well established in the scientific literature, but poorly applied throughout Russia. The USAID program has the opportunity to connect ecobusinesses with best management practices.

IR 1.6.2 — Improved operating efficiency of businesses adopting environmentally friendly practices

This IR encourages businesses to adopt international environmental standards, including those required by the WTO and other voluntary standards such as ISO 14001. Municipalities will receive assistance to implement energy efficiency programs and develop health risk assessment programs. Indicators for this component are the number of businesses adopting ISO 14001 standards and other improvements in pollution prevention practices.

The program supporting expanded use of international environmental standards will help Russian enterprises sell to European supply chains requiring certified products. In addition, it offers the opportunity to increase the adoption of pollution prevention and clean production technologies. This would benefit biodiversity, particularly rivers and other aquatic ecosystems. Expanding this program to include the application of international standards for forestry and fisheries would help promote awareness of such standards and continued access to markets, leading to more sustainable extraction. Business associations representing members that use biological resources for European suppliers and markets should be promoting awareness and use of international environmental management standards such as ISO 14001 and the Eco-Management and Audit Scheme (EMAS).

There are also evolving standards that directly apply to fisheries and forestry. Some examples include the Marine Stewardship Council (http://www.msc.org), the Forest Stewardship Council (http://www.fsc.org), Pan-European Forest Certification (http://www.pefc.org), and the Sustainable Forest Initiative (http://www.afandpa.org). A recommendation under SO 1.4 addresses cross-cutting opportunities to assist business associations as well as federal and regional think tanks in efforts to reform laws, policies, and practices for environmental auditing, including the application of standards and regulations for biological resource extraction.

IR 1.6.3 — Practices that improve environmental quality of services adopted by municipalities

This IR is designed to help municipalities improve environmental performance, invest more efficiently in cleaning the environment, and promote public participation in these efforts. Indicators include the number of municipalities implementing energy efficiency programs and health risk assessments. The assessment team notes that any reduction in environmental pollution will also benefit biodiversity.

IR 1.6.4 — Forestry practices strengthened

Under the draft plan for this IR, the ongoing FOREST project will strengthen forest management practices related to fire prevention and pest management in Siberia and the Russian Far East. Indicators include the percent of forest fires caused by humans, the number of hectares defoliated by insects, and the number of krai adopting improved pest management practices.

The overarching goal of the FOREST project is to *reduce the threat of global climate change by promoting sustainable forestry management and preserving Russian forests as a globally important carbon sink*. Key objectives to achieve this broad goal are:

- Preserving and expanding Russia's carbon sink through more efficient fire and pest management
- Encouraging more effective and innovative use of timber and non-timber forest resources in Siberia and the Russian Far East
- Raising public awareness to reduce the number of forest fires caused by humans
- Introducing renewable energy options as alternatives to fossil fuels
- Strengthening regional forest policy and legislation in Siberia and the Russian Far East to promote sustainable forestry management

The FOREST project, now in its second year, has four main components and several cross-cutting initiatives. Its current design and management approach do not directly address biodiversity conservation needs per se. Though none of the IRs specifically target the conservation of species, ecosystems, or protected areas, the project does tackle some of the most immediate threats.

A report by the World Wildlife Fund (WWF 2001b) identifies forest fires as the *"single greatest threat to biodiversity in the southern Russian Far East."* The forest fire education component of the FOREST project supports biodiversity conservation and is currently working to establish a broad communication infrastructure and targeted messaging to improve fire prevention awareness. So far, the campaigns have targeted schools through curriculum development and the general public through television and radio. Over the next planning cycle, targeted public service campaigns will focus on the specific causes of forest fires. The information gleaned from these efforts suggests that the fire component would be well served by working more closely with forest managers and harvest operators.

The pest component helps maintain forest ecosystems by reducing infestation and disease. Improved forest health could have a significant impact on fuel loading, which would in turn reduce the frequency and severity of forest fires. This component poses some acceptable secondary risks to biodiversity by potentially increasing the application of broad-spectrum insecticides that may harm non-target species. However, this potential threat may be offset by faster and more effective containment through the USAID-funded early warning system. Synergies between the pest and fire programs (e.g., timber stand improvements, prescriptive fire, phytosanitary practices) could be leveraged to reduce the incidence of both, leading to important benefits for biodiversity.

The third component of the FOREST project seeks to improve collection, processing, and marketing of timber and non-timber forest products. Because this components works with associations rather than individual timber or non-timber concessionaires, it has no direct impact

on the actual management of these resources or on biodiversity conservation. However, by linking producer associations with markets, it is expected to yield investments in improved processing as well as more sustainable harvest management practices. Through training and strengthened management systems, this component has the potential to promote behavioral change among forest concessionaires, which could result in improved conservation of forest and aquatic ecosystems.

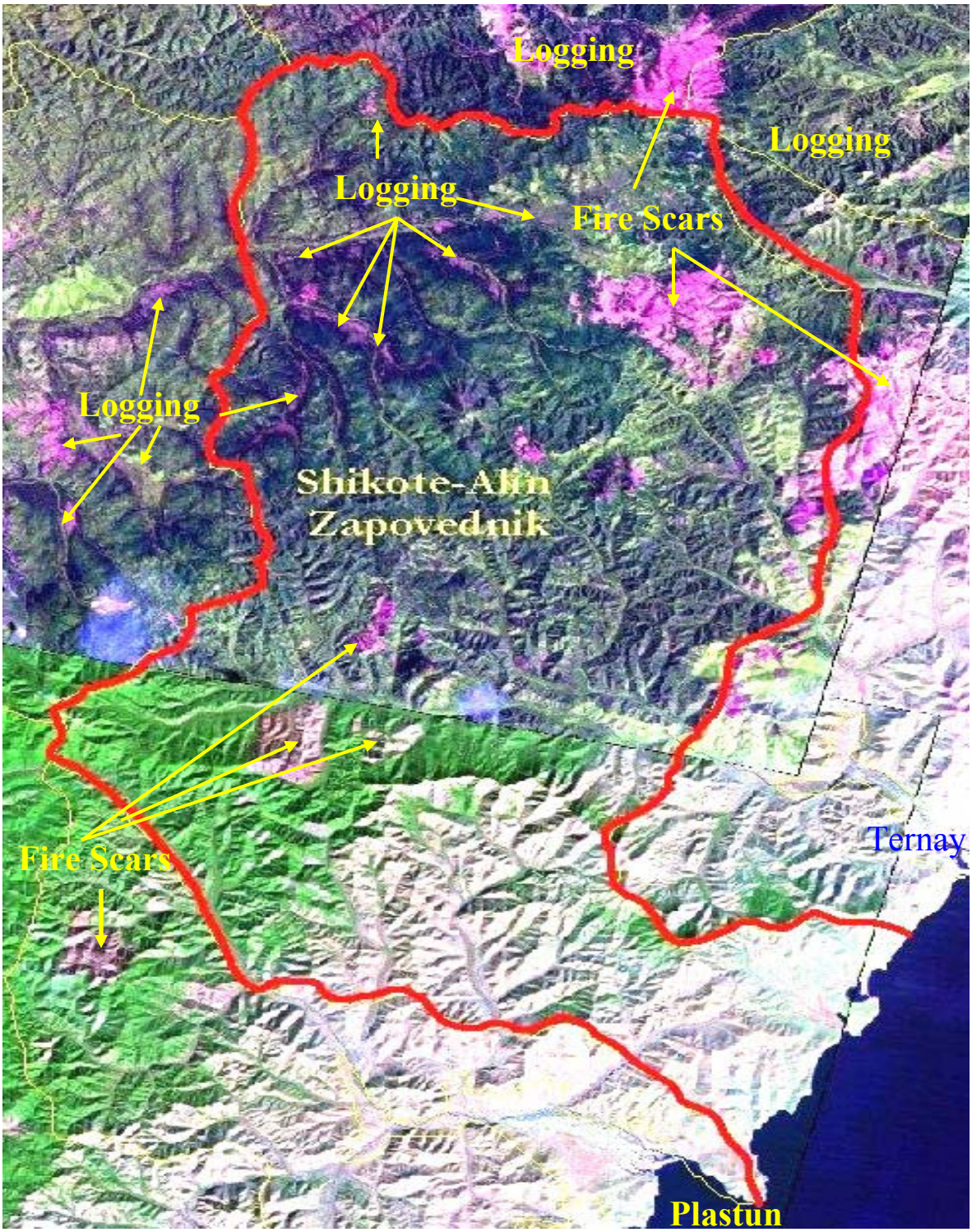
The fourth component works with forests in the Russian Far East to bolster their ability to sequester carbon, which can be used to offset emissions elsewhere or, where applicable, to supplement energy from non-renewable resources. The project has developed systems to map carbon content and is considering ways to use damaged or diseased forests as feedstock for cogeneration. Like other components, this element of FOREST does not work directly with forest managers or concessionaires. However, it can potentially address biodiversity needs by developing remote detection capacity and reducing fuel loading in damaged forests. Since some of the imagery used in this report came from the same sources being tapped to measure carbon loading and flux, it is reasonable to assume that this imagery could also help identify, monitor, and direct the efforts of the fire and pest components.

The FOREST project has several smaller components that might be strengthened to address biodiversity issues. For example, the cross-cutting component for forest policy and legal reform, which has yet to be implemented, might be expanded into a major initiative that would complement recommendations made in this report.

Originally, FOREST was to be complemented by a World Bank activity addressing forest policy and oversight as well as sustainable management through investments in improved harvest and milling capacity. This World Bank project, which was recently canceled, would have addressed core forest management problems that have a direct negative impact on biodiversity, particularly in the Russian Far East. As illustrated in Exhibit III-1 on the next page, there is substantial evidence of logging in protected areas, including zapovedniks, which undermines biodiversity conservation efforts.

With the cancellation of the World Bank project, FOREST is now more important than ever, but must be better equipped to cope with the challenges ahead. Challenges include unsustainable forest management practices, localized over-harvesting, and catastrophic wildfires, all of which seriously threaten biodiversity as well as economic and social stability, particularly in areas where timber is a substantial part of the economy. Nowhere is this truer than in the Russian Far East.

Exhibit III-1. Extent of Forest Harvest and Fire in and around Shitoke Alin Biosphere Reserve



LandSat Thematic Mapper image (1999), courtesy of Thomas Stone, Woods Hole Research Center.

Forestry is an industry that has a particularly strong impact on areas with the highest and most endangered ecosystems and species. Driven in large part by accelerating demand from China, timber is routinely cut and exported illegally (see Section IV for a more detailed discussion). A review of the forestry sector (World Bank 1997) estimates that forestry can contribute $5.5 billion per year in tax revenues. However, most of these benefits are never realized and the opportunity to do so is vanishing. Estimates of illegal logging run from 20 percent nationally to more than 50 percent in some regions.

Several interviews and a thorough review of relevant documents have underscored the vital contribution of the FOREST project on the Russian Far East. In spite of the region's unique forest resources, this USAID project remains the largest among bilateral and multilateral efforts currently under way.

Nevertheless, much more needs to be done for the project to better address the biodiversity needs described in Section IV. While all FOREST components are necessary and important, they are not yet achieving significant integration in ways that would improve the conservation of biological resources and diversity. Forest fire prevention programs focus on generational changes through school curriculums and urban-based campaigns. The pest component seeks to improve detection and response to pest outbreaks in certain forests. The secondary processing component targets associations of processors, not harvesters. And the carbon component seeks measures for non-market forest values and energy outlets for salvage forests. The sum total is that the project has not yet engaged directly in the development of systems and tools for the sustainable management of forests in the Russian Far East.

Recommendation: At the two-year mark, USAID should consider conducting an internal reassessment of the FOREST project given the cancellation of the World Bank project and the progress achieved so far under the main components. The reassessment should identify adjustments needed to promote integration among the various components with regard to sustainable forestry management and biodiversity conservation.

IR 1.6.5 — Increased public participation in environmental resource management

This IR supports environmental groups, including nongovernmental, governmental, and academic organizations, in efforts to increase public involvement in environmental issues, including natural resource management. The ongoing ROLL 2000 program will help fund environmental education projects on topics such as energy efficiency. Indicators for this activity include the number of environmental education programs implemented by NGOs and the number of NGOs adopting citizen advocacy programs.

Since its inception, the ROLL project has awarded nearly 200 grants — totaling $5.6 million — to more than 700 organizations supporting replication activities in 78 of the 89 regions of the Russian Federation. ROLL 2000, the successor to the original ROLL project, continues to provide non-targeted assistance to NGOs, private enterprises, and the public sector. This included some 60 grants disbursed in 2001 to support a broad range of environmental management projects.

Recommendation: USAID should consider issuing a round of ROLL grants targeting NGOs to inform local governments, NGOs, and individuals of their rights and responsibilities with regard to biodiversity conservation.

ROLL was favorably viewed by virtually everyone we met with as part of this assessment. It has generated significant benefits in terms of biodiversity conservation, and has the potential to continue doing so by targeting NGOs and other organizations that support biodiversity. NGOs in particular are well equipped to educate the public about the responsibilities of government agencies, their actual performance, and how public agencies might improve biological resource management. They also play a key role in representing the interests of communities whose forests, lakes, and fisheries may be threatened by government policies or commercial extractors.

In the early phases of the environmental movement in Russia, USAID support through ROLL, the Environmental Policy and Technology project, and the Biodiversity Conservation project (WWF), among others, helped spawn local and national environmental NGOs. USAID's substantial contribution to the growth of the environmental NGO sector has had an important impact on civil society in general, as discussed in greater detail below. However, USAID has shifted its focus on NGOs concerned with other social issues, reducing support to environmental NGOs when they need it most. In the course of conducting this assessment, it became apparent that many in the donor community believe these NGOs no longer need support or are getting it elsewhere. Neither seems to be the case.

ROLL II should build on the lessons learned from pro-NGO partners and ISAR on how to develop grassroots NGOs (see discussion and recommendation under SO 2.1 below).

B2. Democratic Transition

SO 2.1 — A more open, participatory society

Democratic Transition SOs

- SO 2.1 —A more open, participatory society
- SO 2.2 — Increased confidence in a strengthened rule of law
- SO 2.3 — More responsive and accountable local governance

SO 2.1 programs are designed to promote citizen participation in local communities as both a right and a responsibility, and to promote the free and creative exchange of ideas. These programs fall under the overarching goal of developing democratic institutions in Russia, including a free media and a vibrant civil society. There are two approaches to implementing these programs: (a) support diverse sources of information needed for citizens to participate in their society, and (b) direct support to organizations. Increasing public awareness of biodiversity issues is key, particularly by strengthening organizations that provide the public with independent information on the government's responsibility and actual role in managing biological resources.

Continued USAID support to NGOs and public interest research groups will help educate communities about their roles and responsibilities with regard to biodiversity and increase public involvement in government decision-making. One of the program's components supports civil society institutions, including traditional nongovernmental ("noncommercial") organizations, educational institutions, unions, and other NGOs. A network of support centers, training

programs, and small grants is helping build grassroots organizations. Environmental NGOs are eligible to use the resource centers, but they seldom receive small start-up grants through this program. Grants from these centers are targeted in part to social services and youth organizations. Without assistance through start-up grants, new environmental NGOs do not make adequate use of related NGO services. While the ROLL program provides grants to environmental NGOs, it does not provide the same level of mentoring to fledgling organizations. This underscores the need to address the major gap in support to small environmental NGOs.

Recommendation: USAID should develop hybrid programs between NGO support centers and ROLL 2000 regional offices in three to four krai or oblasts to help organize and support grassroots NGOs interested in biodiversity conservation.

Another component of the proposed program supports activities that increase and improve sources of non-state information accessible to the public. The program is designed to boost the dissemination of public information through NGOs and the Internet, strengthen legal protection for the media, and improve the professional practices of the media. Activities under this component could provide essential support to biodiversity conservation in many ways. For example, a round of ROLL grants targeting environmental information would help build a citizenry that is better informed about biodiversity (see recommendation under IR 1.6.5).

There is also a need to collect information elsewhere and distribute the findings not only inside Russia, but also to other governments and international corporations that finance, purchase, and import biological resource products from Russia. This is particularly true regarding fisheries and forest products from the Russian Far East. Fear of being implicated in unsustainable practices and collateral environmental problems (e.g., loss of biodiversity) is a significant barrier for responsible international buyers, who could bring private sector support to improve fisheries and forestry practices in the region.

Recommendation: USAID should consider assisting national and international NGOs in collecting and monitoring data on the global trade of Russian fisheries and forest products and in making the results freely and widely available.

There is a need to reform laws and policies pertaining to “charitable, nonprofit” organizations in Russia. Some Russian NGOs take on all the appearances of either a quasigovernmental organization or a for-profit business. Abuse of non-profit status by institutions ranging from political parties to government agencies and corporations is hindering the growth of traditional public service non-profit organizations. NGOs, particularly those driven by profit and politics, are strongly opposed to transparency. There may be a need to distinguish non-profit charitable organizations as a special class of NGOs. USAID support in analyzing the costs and benefits of specific tax code changes could help distinguish and improve support to important NGOs.

Recommendation: Within the current program, USAID should consider funding an evaluation of non-profit law in Russia and providing advocacy support to changes that will strengthen the independent NGO sector.

SO 2.2 — Increased confidence in a strengthened rule of law

Over the past few years, the stature and authority of the Russian judiciary has increased significantly, and several recent laws provide a foundation for further reforms. USAID has successfully supported public interest legal centers representing workers in thousands of legal hearings. However, there has been limited success in curbing corruption and protecting human rights and independent media. By strengthening private sector review of environmental policy, programs under SO 2.2 may help indirectly address biodiversity policy issues.

By and large, public confidence in the legal system remains low. This is certainly true of the environmental movement, which was recently rebuffed by the government's rejection of a major referendum, citing the lack of enough legitimate signatures even though 2.5 million were submitted when only 2 million were required. In another example, a road around St. Petersburg was challenged because no environmental impact assessment was made. Although the courts ordered construction to stop, the road was built, including sections through protected areas (personal communication from Greenpeace).

Within the next strategic planning cycle, USAID programs will continue to strengthen the independent judiciary and combat corruption, and will add programs to increase public confidence in the legal system. The revised SO recognizes the relationship between reducing corruption in the legal system and raising public confidence in the rule of law. Human rights NGOs will receive assistance in their efforts to increase public awareness of legal rights. Continuing support will be directed at strengthening public interest legal centers; training Russian judges, prosecutors, lawyers, and administrators; and facilitating exchanges with U.S. counterparts. In addition, pilot projects in selected oblasts will work with partners in the public and private sector to improve transparency and combat corruption.

Corruption and weak enforcement programs are legendary in the forestry sector, and are perhaps more extensive but less well recognized in the fishing industry. The degree of illegal harvest and export tells much of the story: according to conservative estimates, 20 to 25 percent of timber and perhaps as much as 80 percent of Pacific fisheries are illegally harvested. Although heisting fish on the high seas might be hard to detect, cutting and transporting thousands of logs in broad daylight is not. The massive volume of fisheries and timber stolen in the Russian Far East requires large equipment, financing, technical skills, and other resources that can only be provided by the government and big corporations. The result not only harms biodiversity, but also significantly contributes to disregard for all forms of law in the "wild east" of Russia.

Recommendation: Within the current judicial training program, USAID should help earmark particular support to enhance the skills of enforcement officers, prosecutors, and judges in environmental law and other tools to improve successful identification and prosecution of offenses against biological resources.

This recommendation should be implemented in two to three oblasts where biodiversity is most threatened by extractive industries. It is designed to be implemented in combination with several other recommendations, including the one that follows on promoting government transparency.

SO 2.3 — More responsive and accountable local governance

This objective addresses the issues that local Russian administrations must resolve to create a vibrant business and investment climate, and to administer and deliver social services. The program will assist local governments, particularly municipalities, in developing the skills needed to properly administer public services and to represent the people before higher levels of government. Over the past 10 years, responsibility has shifted considerably from the federal government to regional (e.g., oblast and krai) and municipal governments. However, the uncertainty of legal authority delegated from federal authorities to local administrations is a continuing problem. A federal component of this program promotes further delegation of authority to the local and municipal levels and a clear definition as to the limits of authority.

The participation of citizen groups and private businesses will become increasingly important and must be supported through transparency of the government budgetary and program planning process, and an openly competitive contracting process. Assistance under this SO emphasizes the need for governments to operate transparently and in partnership with businesses, civil society organizations, and the people. Programs under this SO indirectly help meet biodiversity needs by building local (municipal) government experience in environmental management and public participation in the process. As noted elsewhere, applying these practices at the regional level could substantially benefit biodiversity.

In 2001, a USAID contractor helped Samara Oblast develop a tourism plan. The planning process was participatory, involving more than two dozen individuals from the public and private sectors. Major recommendations of the report focused on tourism based in the nearby protected areas. Unfortunately, no protected area staff participated in the planning process. Hence, the planners may have projected activities not permitted nor desirable from a biodiversity conservation perspective, and missed an opportunity to discuss how tourism growth can help fund the rising costs of managing reserves.

Recommendation: Within the bounds of the current program, USAID should identify methods to promote the transparent accounting of specific resources (fisheries or forest products) within selected oblast and krai. This should include maintenance of open records about concessions, monitoring programs, and audit results.

In the selected krai and oblasts, government agencies should provide the public with information on how assets derived from biological resources are divided between federal and local governments, how those resources are spent, and how much is being spent to ensure sustainability of the resource base. To complement the local and regional programs, USAID partners will encourage the federal government to provide local governments with budgetary authority to bolster regional and local decision-making authority. This recommendation complements proposals to improve public participation (SO 2.1) and promote respect for the rule of law (SO 2.2).

In the next four years, programs under this SO will increasingly encourage government agencies to examine the "big picture" — how economic, social, and political processes interact — and to extend budget and programmatic planning from single-year to multi-year plans. The economic foundations of many communities in Russia are deeply embedded in the extraction of biological resources. Employment in small towns is often directly tied to forestry and fisheries. Many

services required by municipalities have significant and immediate impacts on biological diversity. All too often, planners assume that corridors for transportation, communication, and energy will run through least populated areas, where they may conflict with natural resource management objectives. For example, a Samara city tourism plan published last year projects extensive use of a nearby zapovednik, though no formal consultation has yet taken place with the reserve manager. Furthermore, cities, including industry and municipal services, are major sources of pollution affecting biodiversity, particularly in rivers and other aquatic ecosystems, and are often far removed from the source.

Recommendation: USAID should consider helping three to four oblast and krai develop natural resource and land use plans that support long-term fiscal planning and take into consideration the sustainable management of biodiversity.

This recommendation requires extending the municipal fiscal and programmatic planning experience to the regional level. Land use plans at the oblast and krai level and their decisions on how natural resources are managed have significant implications for cities and small communities. Production and use of a land use plan can greatly facilitate long-term programmatic and financial planning, particularly for small communities most dependent on the extraction of biological resources. At the regional level, the plan can also address biodiversity issues on a scale that complements the other recommendations of the report.

B3. Social Transition

SO 3.2 — Increased use of improved health and child welfare practices

Through this strategic objective, USAID will help the Russian government adopt model medical programs by providing technical assistance and training, and promoting public access to health information. The program focuses on children and women, and improved prevention of tuberculosis, HIV/AIDS, and sexually transmitted diseases.

The assessment team makes no specific recommendation under this SO, but notes that efforts to reduce environmental health problems will also provide a cleaner environment for other species.

B4. Special Programs

SO 4.1 — Special initiatives

Special Programs SOs

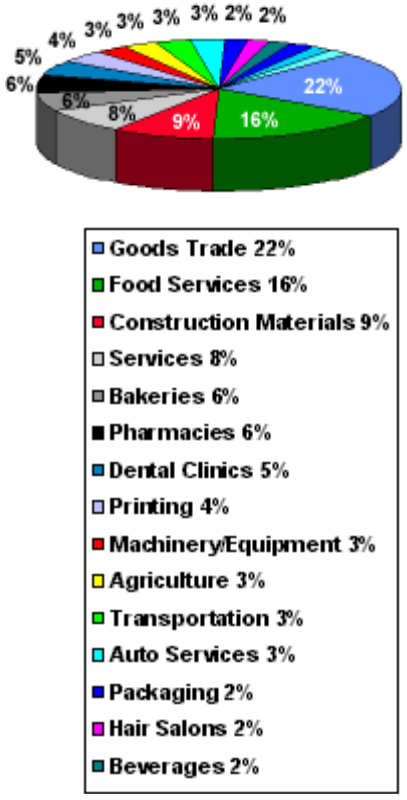
- SO 4.1 — Special initiatives
- SO 4.2 — Cross-cutting strategic objectives

The U.S.-Russia Investment Fund (TUSRIF) is the primary activity under SO 4.1. This fund accounted for more than half of USAID's budget in 2001. The fund provides financial services, including mortgage lending, leasing services, and equity financing. A growing component is directed to leasing services, including machinery and equipment for small to large businesses. The program includes small and medium enterprise loans, but also invests millions of dollars in some companies. The portfolio includes direct investment of up to $10 million in promising companies. The fund has made medium to large investments in industries associated with the extraction of biological resources, including fisheries and non-timber forest products. It also

supports an automobile paint manufacturer. Exhibit III-2 describes a portion of TUSRIF's loan portfolio.

The assessment team did not determine what, if any, environmental review TUSRIF uses to screen potential investments. However, since few of the financing programs examined by the team consider potential impacts on biodiversity, the discussion under SO 1.3 applies here as well. This is particularly important for TUSRIF investments in companies that extract or trade in biological resources, or discharge effluents harmful to aquatic species.

Exhibit III-2. TUSRIF Loan Portfolio



From http://www.tusrif.ru

At the same time, TUSRIF can have a significant and positive influence on biodiversity. The fund should recognize successful companies involved in extracting biological resources as model businesses by publicizing their volume of business, number of employees, and taxes paid. It should also help these companies produce long-term business plans based on the sustainable use of biological resources. Developing internal environmental management systems (EMS) that allow such businesses to detect and mitigate negative impacts on resources or establish pollution prevention initiatives can have long-term cost-reduction impacts. Moreover, WTO accession and better positioning in Western markets is increasingly dependent on broader corporate responsibility. Establishing EMSs that reduce costs, minimize unnecessary environmental burdens, and ensure access to important markets is a "win-win" scenario. USAID's growing efforts to promote clean production and EMS should be brought to bear within TUSRIF.

SO 4.2 — Cross-cutting strategic objective

Programs funded under this SO include U.S.-Russia partnership programs, the Eurasia Foundation, training, evaluations, assessments, surveys, and regional initiatives. The partnerships initiative fosters long-term relationships between U.S. businesses and NGOs and their Russian counterparts. Partnerships will focus on replicating lessons learned in the Volga Federal Administrative District, and on economic development and integration in the Pacific Rim. The Eurasia Foundation works with NGOs, educational institutions, companies, and governments and their U.S. counterparts, providing grants for private enterprise development, public administration, and civil society strengthening.

The assessment team offers no specific recommendation under this SO that is not already discussed above.

C. Assessment Summary

The assessment team finds that USAID/Russia's proposed programs will contribute to meeting important biodiversity conservation needs:

- Biodiversity will benefit from programs to strengthen eco-friendly businesses. However, additional information is needed on how loans are being used by other businesses to ascertain the type or extent of impact they may have on biological resources. We recommend that USAID/Russia evaluate the potential effects of programs that promote and help finance Russian businesses.

- Programs to improve government policies toward businesses are unlikely to have significant direct effects on biological diversity, but have the potential to bring about positive changes on how biological resources are managed. For example, think tank efforts to strengthen environmental policy and promote transparency will provide a foundation for more specific work related to biodiversity.

- Environmental programs will help meet biodiversity needs in several ways. Promoting eco-friendly businesses may lead to improved management of NTFPs and increase the economic value of natural ecosystems. Reductions in environmental pollution will benefit biodiversity, particularly rivers and other aquatic ecosystems. The FOREST project provides several benefits to biodiversity. The forest fire component contributes to maintaining mature forests. Likewise, the forest pest component helps maintain forest ecosystems, as well as decrease the frequency and severity of forest fires through a reduction in fuel levels. At the same time, the pest program poses some secondary risks to biodiversity. The ROLL project was favorably viewed by virtually everyone the team met with. This program has provided significant benefits to biodiversity conservation, and has the potential to continue doing so to the extent it supports biodiversity conservation NGOs.

- USAID support to NGOs and public interest research groups will continue to increase public involvement in government decision-making and educate Russian citizens about their roles and responsibilities with regard to biodiversity.

- Rule of law programs indirectly address biodiversity policy issues by strengthening private sector review of environmental policy.

- Programs directed to local governance help meet biodiversity needs by building local (municipal) government experience in environmental management and public participation in the process.

- Under the health program, efforts to reduce environmental health problems will also provide a cleaner environment for other species.

D. Summary of Recommendations

While the assessment team finds that USAID's proposed programs for the next planning cycle will contribute to meeting many biodiversity needs in Russia, the contribution is apparently declining. Over the past 10 years, USAID/Russia has always had an environmental program with a substantial biodiversity conservation component, which is not the case under the new plan. The weakening of the biodiversity program is noteworthy given the importance of biological resources to the Russian economy in significant parts of the country, and the implications for employment, the local economy, international markets, and regional stability.

As an alternative to rebuilding a large, stand-alone biodiversity program, the assessment team has identified activities under USAID's proposed plan that might be modified to help meet significant biodiversity conservation needs. Integration of biodiversity components into some of the Mission's many programs is the most promising approach to strengthen sustainable management of biodiversity and to meet the overall objectives of social and economic stability.

Throughout this report, we have provided 14 recommendations distributed among nine SOs. These recommendations require initiatives by dozens of individual contractors. Below, we rearrange the order and combine some of the recommendations, presenting them as a biodiversity program built on cross-cutting initiatives among all SOs.

D1. Internal USAID Recommendations

Two of the recommendations are primarily internal to USAID:

1. The Mission should take a retrospective look at biodiversity programs by *compiling USAID contributions to biodiversity in Russia over the past 10 years.* This would provide valuable background for planning further biodiversity programs. It requires looking beyond the environmental program by identifying how other USAID programs have improved biodiversity conservation in Russia. There is much more than meets the eye as USAID has made considerable contributions in this area. The assessment team would have found such a report useful as a background document.

2. USAID should examine how programs providing financial assistance to Russian businesses might affect biodiversity and, if necessary, *consider how to incorporate biodiversity considerations in finance programs.* Such a study would also provide insights into how USAID financing might lead to improvements in the environmental performance of businesses.

D2. National Recommendations

The following three recommendations are national in scope, but have regional and local applications, and one has an international component:

1. In the environmental sector (and perhaps other sectors), the effectiveness of the NGO community is seriously hampered by the ambiguity surrounding what constitutes a nongovernmental organization. Hence, we recommend a discrete activity for a think tank

to *research and identify options for legally redefining NGOs* as unique institutions that work for the public good, independent of government and industry. Closely related topics that should also be investigated are: (a) laws and policies regarding tax-free status for environmental NGOs; and (b) tax incentives for charitable contributions by individuals and businesses. These studies could be followed by advocacy work to ensure implementation of the best options. Accomplishing this will help strengthen the NGO community across Russia.

2. The *ROLL program should dedicate a round of grants to improving public understanding of biodiversity issues.* Topics might include publicizing the conservation value of regional protected areas; research and public information about the potential economic value of declining resources (e.g., sea cucumber, ginseng, sturgeon, timber, etc.); analysis and distribution of public records on forest resources; and independent analysis comparable to the public record. Research, analysis, and debate at the community level could engage and inspire residents most affected by the changing economy.

3. Much of the harvest of biological resources is exported from the Russian Far East, particularly fish and forest products (including NTFPs). *Gathering import data from countries that purchase Russian biological resources and making such data widely available* will increase pressures on Russian government agencies to better account for the resources they manage. Publicizing such data will also place added pressures on responsible corporations to steer clear of illegally harvested and exported goods. The intended result is to decrease illegal harvest in Russia and increase tax collection of what is harvested. We recommend that USAID/Russia, in cooperation with USAID/Washington (Europe and Eurasia Bureau and Asia Near East Bureau), explore options for supporting Russian and international NGOs working in this area.

D3. Other Recommendations

The remaining recommendations should be implemented in selected regions of Russia, with as many recommendations as possible implemented in the same regions so they might be coordinated to maximize impact. A key recommendation is to establish cross-cutting biodiversity initiatives in three to four regions. In each region, USAID or contractor staff would be responsible for helping design and coordinate biodiversity components as initiatives that cut across other USAID programs. This recommendation takes into account USAID/Russia's changing structure and would help protect and manage biodiversity without creating a new stand-alone biodiversity program.

The recommendations below are described in general terms, followed by examples of how they might be implemented in two regions:

1. The most far-reaching recommendation proposes that USAID/Russia consider *establishing programs to promote and coordinate biodiversity initiatives in three to four regions of Russia*. Ideally, regions should be selected where: 1) biodiversity is rich and most severely threatened; 2) USAID has active programs under most or all SOs; and 3) there is reasonable cooperation with the regional administration. Implementation in European Russia might be supported by a USAID regional coordination office, with

occasional assistance from expert consultants. In the Russian Far East, such a program may warrant the placement of a resident biodiversity coordinator. These initiatives would work most closely with regional government agencies responsible for biological resources. Local representatives of the federal government, NGOs, and businesses would be important partners. Many or most of the programmatic initiatives would be associated with other USAID programs, including those discussed in the recommendations that follow.

2. Responsibility for managing publicly held biological resources is divided among federal and regional government agencies. For example, some protected areas are managed by the federal agencies (e.g., zapovedniks and national parks), while others are under the care of regional governments (e.g., nature monuments, wildlife refuges). Most of these are multi-use areas providing little protection to biodiversity. Similarly, responsibility for timber resources are split between federal and regional authorities, perhaps depending on the region or the designation of a tract of land (e.g., military lands, national parks, wildlife refuges, etc). However, federal responsibilities sometimes conflict with the authorities granted to regional governments. Furthermore, there is a clear lack of communication on revenue generated (and potential revenue), where these funds are directed, and how much is spent to ensure the economic and social sustainability of biological resources. The team recommends that USAID cooperate with think tanks to identify options for *optimizing how federal and regional authorities divide responsibility and authority over biological resources and the economic gains they provide*. A federal think tank might look at national issues and collaborate with local think tanks focusing on regional issues.

3. USAID should *initiate pilot projects to develop regional land use plans* that would help predict and monitor sustainable development, taking into account biodiversity conservation. This proposal is an extension of USAID's work with municipalities to help them develop long-range projections for fiscal and programmatic planning. Land use plans provide a foundation for long-range fiscal and programmatic planning and subsequent monitoring of land-based resources. In the Far East, they shed light on the problems of overlapping concessions, or expose the impending collapse of the timber industry in time for some localities to correct their course before all hope is gone. In the agricultural regions of southern European Russia, land use maps may lead to improved management of public lands and would be an enormously important tool prior to rural land privatization. Local NGOs and international consultants should help regional governments develop these plans.

4. USAID should *promote transparency of government budgets, programs, and results in biological resource management*. This program should initiate a dialogue to determine appropriate levels of investment and who will make them. Think tanks and advocacy groups are well suited to promoting fiscal transparency among regional environmental agencies and local agencies responsible for biological resources. NGOs can help engage the public in a healthy debate about how their resources are managed and how their taxes are spent.

5. Hybrid programs between NGO support centers and regional ROLL offices should be developed to *help build grassroots environmental NGOs* interested in biological resources.

6. The *FOREST project should be reevaluated* in light of the cancellation of the World Bank project. Considering the importance of the forestry industry for terrestrial biodiversity in the Russian Far East, this project has the potential to more directly improve forest management to benefit the economy, social stability, and biodiversity. The now-dormant policy component of the project could begin to address critical policy issues. FOREST might also *increase support for research on harvest practices in the NTFP industry* and promote use of methods that sustain biological diversity.

7. A program should be created to *train enforcement officers, prosecutors, and judges in environmental laws* and enhance their skills to successfully identify and prosecute offenses against biological resources.

Up to this point, we have identified issues and opportunities for natural resource management within the context of the individual SO teams. Our recommendations focus on logical outgrowths of current programs that can improve biodiversity conservation and overall economic and environmental performance. The potential impact of these efforts can be considerably greater if applied coherently in a specific geographic location. Below, we suggest how the SO teams could work together in the Russian Far East and the Volga Federal Administrative District to make significant contributions to biodiversity conservation throughout Russia.

E. Two Cross-Cutting Program Examples: Russian Far East and Samara Oblast

Below, we present examples of how regional biodiversity programs might be structured in two regions where USAID already plans to concentrate efforts in the next planning cycle: the southern Russian Far East and Samara Oblast in the Volga Federal Administrative District.

E1. Russian Far East: Linkages Between Biodiversity and Socioeconomic Issues

Economic and social stability in the Russian Far East is largely dependent on industries that extract, process, transport, and export biological resources. This dependence will be central to the region's development for many years to come. Unfortunately, current practices are depleting the resource base at a rate that will too soon create economic and social instability. The problems are well understood — forestry and fishing, much of it illegal, lead the list of unsustainable practices. The decline in biological resources virtually assures a bleak future for the region unless there is a significant change in the way resources are managed. The success of USAID's overall program in the region — and indeed perhaps the most enduring legacy of USAID's presence — requires that the resource base be maintained through sustainable yield harvesting and stricter conservation of the most fragile elements of the land and seascapes.

Exhibit III-3. Mining Renewable Natural Resources: The Cycle of Devaluation

The cyclical nature of biological resource degradation in the Russian Far East is well understood, though the data supporting each of the interdependent phenomena are poorly documented. While the exact sequence of problems remains debatable, there seems to be little disagreement, at least in the donor and NGO communities, that regulatory shortcomings, corruption, and illegal harvesting are seriously undermining sustainable management and important reinvestment into the natural resource base. Crumbling processing infrastructure in forest industries harms competitiveness in international markets, which further opens the door for undervaluation and ensures that sales to the lowest bidder will continue and likely accelerate. Staggering tax revenue losses further undermine value for both federal and krai governments. Declines in regulatory capacity ensure that the system perpetuates itself and illegal activities continue until a "scarcity" signal begins the next stage of market development. For fisheries and forests in the Russian Far East, the signals of serious decline may come too late.

There seems to be a broad consensus that forestry off-takes are under-reported by 25 percent or more in the Russian Far East. There is considerable disparity between the reported and actual harvest for fisheries and forests. For example, in the Primorye region in 1999, allowable harvests of valuable timber were established at 260,000 m^3, while 500,000 m^3 officially passed customs. Regional administration officials estimate overall exports of such timber at 600,000 m^3 in 1999 based on the volume that passed customs (Greenpeace data derived from official sources). More than 50 percent of the timber was cut illegally. Marine fisheries are apparently much worse. Researchers from Greenpeace report that 1998 fish exports from Russia totaled 200 million lbs, while data from six countries showed they imported only 18 million lbs from Russia over that same period. It appears that nearly 90 percent of Russia's fish are leaving the country illegally. This is predominantly a Russian Far East problem since 96 percent of Russia's fish catch comes from that region.

USAID can help correct these problems through a combination of activities under separate programs that are coordinated to produce significant, long-term benefits to biodiversity conservation and socioeconomic stability. Cumulatively, these activities could support the important reconciliation between federal and local jurisdiction over biological resources and help harmonize conflicting and overlapping concession management for timber and non-timber products.

The primary components of a USAID program in the region might include the following:

1. *Improve the value of biological resources* by strengthening government and non-government capacity to monitor harvest, sales, and trade in biological resources. Activities should include a think tank review of how federal and regional authorities

divide responsibility for managing forest resources, including land tenure, concession management, collection of stumpage fees and taxes, investments in management, and enforcement. Krai governments should be assisted in developing long-term economic forecasts for tax revenues based on sustainable use of biological resources. They should also plan for reasonable programmatic investments to monitor and protect their resource base and the biodiversity harbored there. National and international consultants might be contracted to help develop a land use plan. USAID/Russia should consider collaborating with the Asia and Near East Bureau to develop a transboundary intraregional trade initiative tracking endangered species and illegal forest and fish products.

2. *Encourage businesses to use sustainable management principles* by supporting the development of environmental awareness through the NGO community. Small and medium enterprise programs should adopt investment guidelines and screen lending to develop eco-friendly businesses. Business association and businesses based on ecotourism and the sustainable extraction of biological resources should be supported. Efforts should also be made to promote investment and joint ventures with companies that use market-based instruments and international standards for sustainable management of biological resources.

3. *Improve the rule of law* by providing enforcement officers, lawyers, prosecutors, and judges with training in biodiversity-related laws. There is a need to promote changes to the legal system to ensure appropriate penalties for violation of environmental laws.

4. *Promote public participation* in government decision-making by providing the public with information about biological resources, how they relate to the economy, and what the government is doing to protect and manage them in a sustainable manner. Hybrid programs should be created to provide grants and institutional training to grassroots environmental NGOs.

E2. Samara Oblast: Maintaining Biodiversity Values in a Changing Economy

Samara Oblast in the Volga Federal Administrative District is a mosaic of native steppe grasslands, forests, and agriculture along the Volga River. Most of the grasslands in Samara are heavily impacted by grazing, but still retain much of their native biota. These grasslands and mature forests are increasingly rare in the region. In some places, threatened natural communities harbor endangered species. Natural areas, large and small, are scattered across the region. Many are under the authority of federal or oblast governments and are dedicated, at least in part, to biodiversity conservation, though they may not be actively managed for biodiversity. Other areas are proposed for protection. Many of the natural areas are connected by corridors of natural habitat, often following rivers and streams.

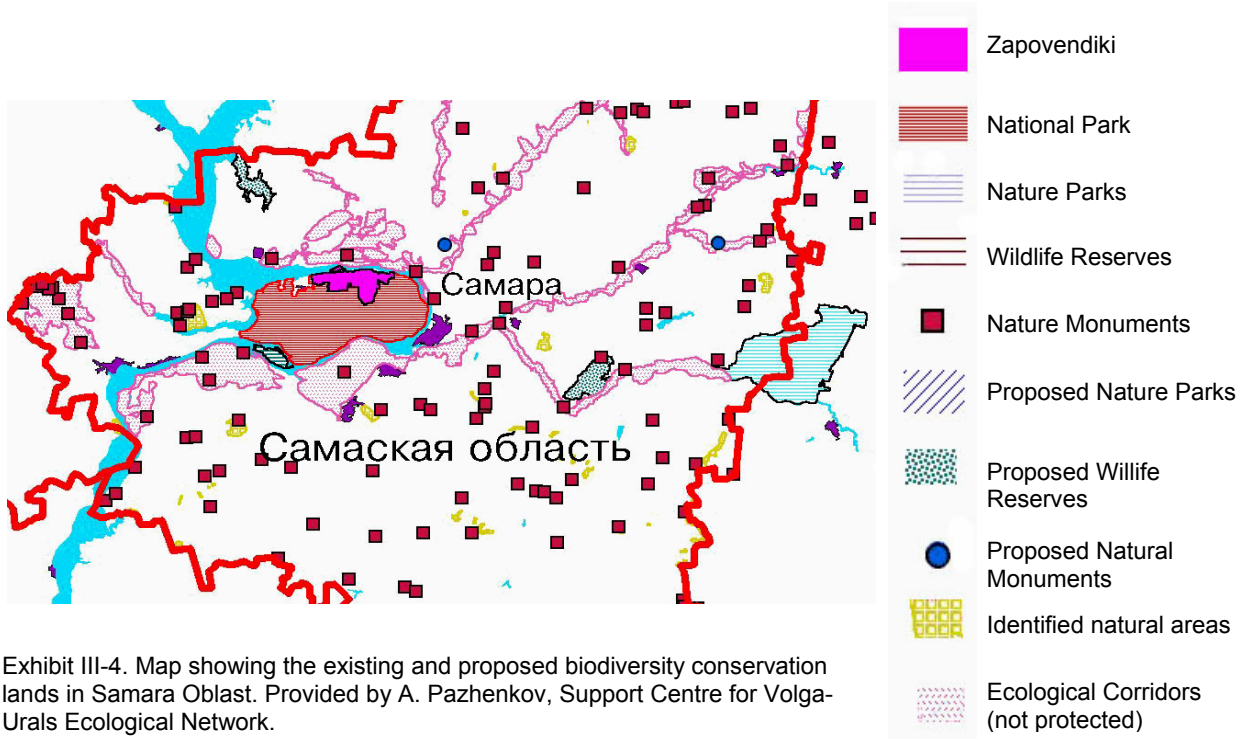


Exhibit III-4. Map showing the existing and proposed biodiversity conservation lands in Samara Oblast. Provided by A. Pazhenkov, Support Centre for Volga-Urals Ecological Network.

In front of the town of Samara, on the west bank of the Volga River, is the Zapovednik Zhigulevsky and Samarskaya Luka National Park that together cover 171,000 ha, encompassing most of the peninsula formed by a large loop in the river (see Exhibit III-4). While the 23,000-ha zapovednik is dedicated to conservation and allows no development, the much larger national park is a multiple-use zone that includes farms and small communities with croplands, grazing, and forestry. However, the main employers on the peninsula are the natural areas and the oil industry. According to the head of the zapovednik, the biggest challenge facing the natural areas and local community are plans for the oil industry to end production in 2015. At that time, thousands of people living in and around the natural areas face loss of employment, posing a considerable threat to biodiversity in the region.

Samara Oblast already recognizes the potential for tourism in the riverfront and natural areas. Tourism development plans prepared in 2001 with assistance from USAID recognize the potential for developing ecotourism. Unfortunately, no connection has yet been made between new revenues and the need to increase expenditures to manage increased visitation in the natural areas.

Rural land privatization will likely come to Samara in the next few years, further pressuring natural resources in the region. Changes in land ownership often result in loss of biological diversity as new owners sell timber for cash and convert remaining native steppe and wetlands to croplands. These changes will seriously affect the biological corridors.

USAID has focused substantial support in Samara Oblast over the past 10 years, and is in a good position to help resolve some of the emerging conflicts between development and biodiversity in the region. The main components of a USAID biodiversity program in Samara could include the following:

1. *Strengthen the capacity of oblast government and local communities to manage lands for biodiversity values and sustainable development.* Local NGOs and international consultants could help the government prepare land use maps as a foundation for long-term planning. Think tanks could help identify options for zoning regulations for public and private lands. The maps and zoning exercise would help prepare the region for rural land privatization. The maps should delineate public lands and identify corridors that should be maintained for biodiversity functions. Think tanks could also help identify options for how the federal, regional, and local authorities divide responsibility for managing biodiversity.

Can and should this oil town, nestled between the bluffs of the Zapovednik Zhigulevsky and the Volga River, be transformed into a tourist destination? Photo by R. Warner.

2. *Strengthen support and confidence in the rule of law.* Think tanks and advocacy groups should be encouraged to identify options for the division of responsibilities to enforce natural resource and other environmental laws. They should also promote changes to the legal system to ensure appropriate penalties for violation of environmental laws. Enforcement officers, lawyers, prosecutors, and judges should receive training in biodiversity-related laws.

3. *Promote public participation in government decision-making.* Through support to NGOs, the public should receive information about biological resources, how biodiversity relates to regional development plans, and what the government is doing to protect and manage the people's resources. A hybrid program providing grants and institutional training to grassroots environmental NGOs should be created.

4. *Improve opportunities for small and medium enterprises to relieve pressures from biodiversity.* Various options should be explored, including programs that assist small and medium enterprises and community-based organizations in developing eco-friendly businesses based on ecotourism and the sustainable extraction of biological resources. USAID might initially target these programs to areas in and around the "Luka" natural areas, thereby preparing the region for a shift from the oil industry to other employment.

SECTION IV

Status of Biodiversity

A. Overview [1]

Russia is truly a land of biodiversity superlatives. It occupies one-eighth of the Earth's terrestrial surface. Geomorphology and climate have played significant roles in the development of ecosystem diversity in Russia. Much of the country is covered by two pre-Cambrian formations — Russian and Siberian — separated by the Urals ridge. The pre-Cambrian formations were largely overlaid with young geologic deposits from glaciers, sea, and wind. Northern Russia shares many species of plants and animals of circumpolar arctic distribution with Europe and North America. The high mountain ranges of the Transbaikal, Sayans, Altai, Tien-Shan, and Caucasus bound much of southern Russia, where they provided refuge to biota during periods of glaciation, inundation by seas, and climatic extremes. These areas are characterized by high species diversity and endemism. Ecosystems harboring relict biota of glacial and interglacial periods and many species that are rare today are particularly widespread in European Russia and eastern Siberia.

Russia harbors more than 11,000 species of vascular plants, 320 species of mammals, 730 species of birds, 75 species of reptiles, 30 species of amphibians, 270 freshwater fish species, and tens of thousands of invertebrates, fungi, and protozoan. The greatest numbers of species and greatest diversity of ecosystems are found in southern Russia from Europe to the Far East. The Russian Taiga is twice as extensive as the entire Amazon forest region, and contains more than a quarter of the world's forests and 57 percent of all standing coniferous forest (Rosencranz & Anthony 1992).

> "The unique assemblages of species of the Greater Caucasus and the Russian Far East surpass the diversity and endemism found in temperate forests anywhere else in the world."
>
> *Forest Policy During Transition*
> *Word Bank, Russia, 1997*

The greatest changes to the landscapes and losses of biota in Russia have occurred in the northern Caucasus, Central European Russia, the Volga Region, and southern Siberia. Two biomes of European Russia, broad-leaved forests and steppes, are almost completely transformed by human activities, and natural ecosystems are found there only in small areas. Zapovedniks protect only 0.4 percent of the original European steppe. Biological and landscape diversity in other regions are less impacted. Industrial and agricultural expansion into Siberia and the Russian Far East are limited by cold climate, permafrost, and lands poorly suited for agriculture. Approximately 90 percent of tundra, 70 percent of taiga forests, and 25 percent of Asian steppes remain in largely native condition, particularly in mountainous regions. However, even remote areas of Siberia and the Russian Far East have experienced locally significant changes due to the extraction of oil, gas, and other mineral resources, timber extraction, and dams for hydropower plants, fisheries, and agriculture.

[1] The primary source of information for Section IV is *Biodiversity Conservation in Russia: First National Report of the Russian Federation*, published in English in 1997 (see http://www.rcmc.ru/official/report97/cont_e.html for the full text). This material was updated in some areas and additional sources of information are cited in the text.

B. Terrestrial Biomes

Below, we describe the principal terrestrial biomes of Russia, which are extremely coarse ecological divisions covering tremendous expanses of land. Each biome includes many distinct ecosystems, such as rivers, marshes, bogs, floodplain meadows, grasslands, and forests. In addition, each ecosystem includes scores or hundreds of distinct natural communities. For example, the "mixed broad-leaved and mixed coniferous broad-leaved forest" in the Russian Far East includes many types of forests, some dominated by oak, others by poplar, and still others with a substantial component of pines; and each of these forest types has a distinct component of shrubs, herds, birds, insects, etc. What follows is an overview of the biomes highlighting key biodiversity issues and opportunities for conservation.

B1. Polar Deserts

Polar deserts are characterized by their circumpolar distribution. In Northern Eurasia, they occur on the islands of the Arctic Ocean. The ecological diversity of polar deserts is poor due to climate extremes. Local flora of vascular plants amounts to only 20-30 species per 100 km^2. The vegetation cover is dominated by spore plants: algae, lichens, liverworts, and mosses, and a few species of flower plants (*Saxifraga spp., Puccinelia spp*., and grasses). Common animals include seals, walrus (*Odobaenus rosmarus*), and polar bears (*Ursus maritinus*). Many species and ecosystems of this biome are protected on Franz Josef Land in the Zemlia Frantsa Iosifa protected area (zakaznik).

B2. Arctic Tundra

Arctic tundra also has circumpolar distribution. In European Russia, arctic tundra occurs on Arctic Ocean islands, including the Southern Island of the Novaya Zemlia (New Land) and others. In Asian Russia, arctic tundra forms a narrow belt along the Kara, Laptev, Northeast, and Chukchee Seas, Novosibirskie Islands, and Severnaya Zemlia. Maritime plain landscapes with polygonal and spotty tundras, polygonal wetlands, and brine marshes of delta areas are common in arctic tundra. Local vascular floras of arctic tundra typically include 70-100 species per 100 km^2.

Common flowering plants include *Dryas spp., Cassiope tetragona,* willows *(Salix spp.)*, grasses, sedges, and saxifrages. Lichens and mosses form an insulating carpet that maintains the permafrost typical of this biome. Vertebrate fauna typically includes reindeer (*Rangifer tarandus*), polar fox (*Alopex lagopus*), lemmings (*Lemmus sibirica, Dycrostonyx torquatus*), geese, alpine ptarmigan (*Lagopus mutus*), and numerous species of waterfowl. In the past few decades, oil and gas prospecting, extraction, and transportation have destroyed arctic tundra on Kolguev Island, and the Yamal and Gydan peninsulas. Rare plant species are few. Best known among rare animal species are walrus (*Odobaenus rosmarus*), Bewick's swan (*Cygnus bewickii*), and snow goose (*Chen hyperboreus*). The biota and ecosystem of arctic tundra are represented in several zapovedniks, including Bolshoi Arktichesky (Taimyr Peninsula and islands), Ust-Lensky (Lena river estuary), and Ostrov Vrangela (Chukchee Sea).

B3. Subarctic Tundra

Subarctic tundra is marked by bizarre wetland formations resulting from centuries of cyclical freezing and thawing. Brush lands are common along rivers. Species diversity in subarctic tundra may be twice that of biomes further north. Local flora of vascular plants reaches 250-300 species per 100 km^2, including a wide range of shrubs (birch, willow, *Vaccinium spp., Empetrum nigrum*), grasses, and sedges. Mosses are remarkably diverse, with 150-200 species in some localities. Vertebrate fauna is also richer, with up to 100 bird species and 25 mammal species in some areas. Rare species include falcons (*Falco rusticolus, F. peregrinus*), swans (*Cygnus bewickii*), and red-breasted goose (*Branta ruficolis*). In European Russia, subarctic tundra biota is conserved only in the Lapland zapovednik on the Kola Peninsula. In Asian Russia, it is conserved in Taimyrsky, Putoransky, and Ust-Lensky zapovedniks, in the Bering Natural Park, and in some zakazniks.

B4. Boreal Coniferous Forests

Boreal coniferous forests (or dark-coniferous taiga) are common in European Russia and Siberia. These forests are dominated by a few tree species, generally including spruce (*Picea abies, P. obovata*), fir (*Abies sibirica*), cedar (*Pinus sibirica*), pine (*Pinus sylvestris*), and larch (*Larix spp*). Although boreal coniferous forests look uniform, they harbor a surprising diversity of ecosystems and microhabitats important for many species. This biome is notably more diverse than tundra: local vascular floras consist of 400-700 species per 100 km^2, and up to 150 bird species and 50 mammal species. There are few species endemic to boreal coniferous forests and few that are rare, such as the Siberian spruce grouse (*Falcipennis falcipennis*).

Species typical of this biome include brown bear (*Ursus arctos*), moose (*Alces alces*), lynx (*Lynx lynx*), otter (*Lutra lutra*), beaver (*Castor fiber*), and sable (*Martes zibellina)*. Examples of the biome are protected in many zapovedniks (strict nature reserves), including Kivach, Kostomukshsky, Pinezhsky, Pechoro-Ilychsky, Malaya Sosva, Kerzhensky, Visimsky, Zeisky, Barguzinsky, and Central Siberia.

B5. Larch Forests

Larch forests (light-coniferous taiga and thin forest) are widespread in central and eastern Siberia, Transbaikalia, and the Far East. Larch (*Larix dahurica, L. sibirica, L. sukaczewii*) are dominant over much of this biome, particularly in low mountains and river valleys. Pine forest and tundra are often interspersed with the larch forests. Permafrost underlines much of the biome. Sites typically contain 400-450 vascular plant species per 100 km^2, up to 80 species of birds, and 40 mammal species. Steppes included in this biome are found in valleys (e.g., of the Lena River) and on southern slopes, where they harbor significant biodiversity. The ecosystems and species diversity of this biome are protected in Putoransky, Magadansky, and Olekminsky zapovedniks, among others.

B6. Broad-Leaved and Mixed Coniferous Broad-Leaved Forests

Broad-leaved and mixed coniferous broad-leaved forests are found in European Russia and the southern Russian Far East. Though superficially similar, the details of natural communities in

these two regions are distinct. In general, the dominate trees include oak (*Quercus spp.*), maple (*Acer spp*.), linden (*Tilia sp*.), and ash (*Fraxinus spp*.). The northern reaches often include conifers such as spruce (*Picea spp*.), pine (*Pinus spp.*), and fir (*Abies spp*.). Sites may include more than 800 species of vascular plants per 100 km^2, 60 species of mammals, and 150 birds. This biome includes some of the well recognized rare and endangered species, such as tiger (*Panthera tigris*), leopard (*Panthar pardus*), lady-slipper orchids (*Cyprepedium spp*.), and ginseng (*Panax schin-seng*). Notably rich in biodiversity and particularly threatened are the broad-leaf forests of the North Caucasus, a region identified as one of the 200 ecosystems in the world in need of urgent protection (Olson D.M. & E. Dinerstein 1998). This biome is found in Bashkirsky, Volzhsko-Kamsky, Voronezhsky, Bryansky Les, Zhigulevsky, Ilmensky, Kedrovaya Pad, Sikhote-Alinsky, Les na Vorksle, Prioksko-Terrasny, Ussuriisky, Khopersky, Shulgan-Tash, Khingansky, and Caucassky zapovedniks, as well as other areas designated for nature conservation.

B7. Steppe and Forest Steppe

Russian steppe. Photo by A. Pazhenkov.

Steppe and forest steppe are widely distributed in European Russia and southern Siberia and adjacent countries. Grasslands dominate this biome. Broadleaf forests are often intermixed with the grasslands in the north and along river valleys in the south. More than 1,100 species of vascular plants can be found in mesic sites, 700 species in dry steppes, and 500 species per 100 km^2 in arid steppes. Typical sites might include 50 mammal species and 90 bird species. This zone is indicative of a high level of rare and endangered flora and fauna species, including plants such as *Stipa spp.*, *Adonis vernalis*, *Crambe tatarica*, *Centaurea spp.*, *Fritillaria spp.*, *Paeonia tenuifolia*, and vertebrates such as *Vormela peregusna* and birds of prey. This biome includes many distinct natural communities and high species diversity. The high variability of natural communities, often on unique substrates such as limestone, includes many endemic species in need of conservation.

Many types of steppes in European Russia and the North Caucasus have nearly all been converted to agriculture. The remaining intact sites of these steppes urgently need conservation, and many small, protected sites should be connected as an ecological network. Steppe biomes are carried out in Bashkirsky, Galichia Gora, Dagestansky, Povolzhskaya Step, Severo-Ossetinsky, Khopersky, Tsentralno-Chernozemny, and Orenburgsky zapovedniks.

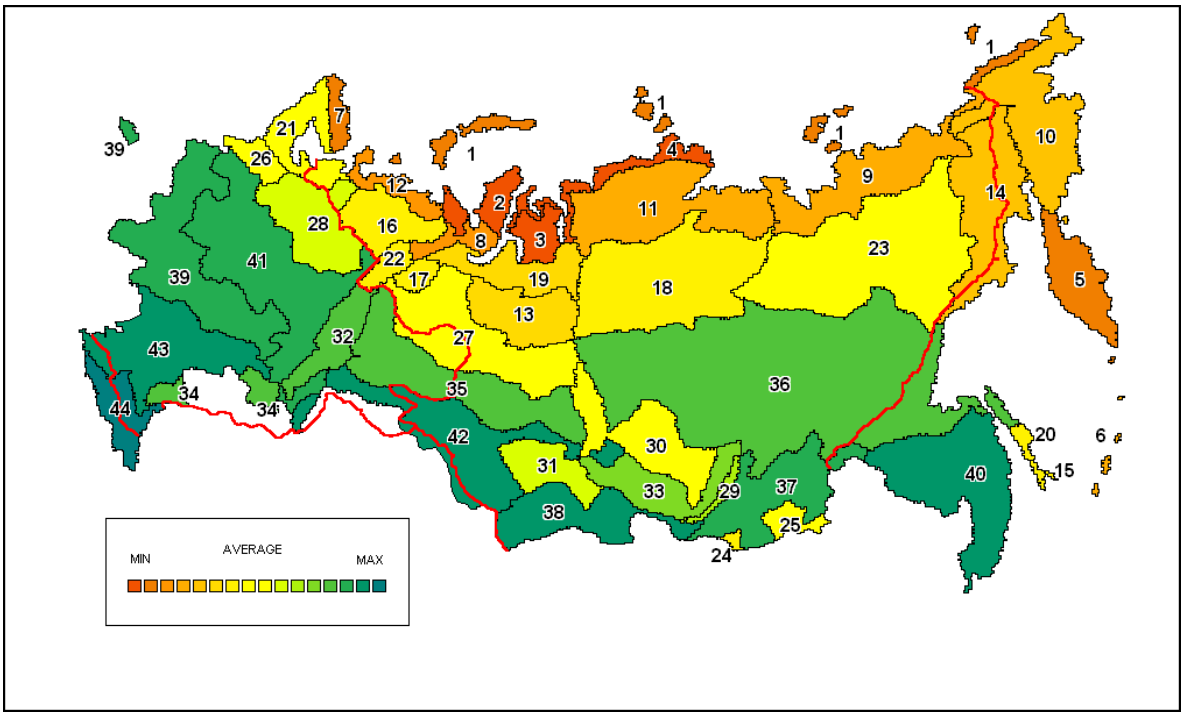
B8. Semiarid and Arid Biomes

Semiarid and arid biomes are found in southern Russia, around the Caspian Sea, the deltas of the Terek and Samur rivers, and in Asia on the Kazakhstan border and the mountain valleys of southern Siberia. This biome is dominated by grasses (e.g., *Festuca spp., Agropyrum spp., Stipa spp*., and other grasses), a distinct component of ephemeral flowering plants (e.g., *Tulipa spp., Eremurus spp., Alyssum spp., and Papaver spp*.), and a few shrubs and trees. Sites typically include 150-250 species of vascular plants or fewer in the driest areas, 25-30 species of mammal, 40-50 species of birds, and a relatively high diversity of reptiles (25-30 species) per 100 km^2. Typical of grasslands in much of the world, the arid and semiarid grasslands of Russia have been substantially transformed by people, with the usual negative impacts on biological diversity.

Cattle graze many of these grasslands and large areas are irrigated and cultivated. Overgrazing and salinization are serious problems. Intensive exploitation of Russian arid ecosystems has led to biodiversity depletion and extension of the rare species lists, especially among vertebrates. The biological and landscape diversity of Russian semiarid and arid lands are protected in Chernye Zemli, Dagestansky, and Ubsunurskaya Kotlovina zapovedniks.

Exhibit IV-1 below illustrates the taxonomic diversity in Russia's ecological regions. Exhibit IV-2 on the next page shows another way to distinguish major biological features, and specifies the names and sizes of each ecoregion. Delineating these on a map provides a useful format for depicting biodiversity patterns. Exhibit IV-1 shows that taxonomic diversity (largely reflecting the number of species and degree of endemism) in an ecoregion increases as one moves further south. The northern Caucuses have the richest biodiversity in Russia.

Exhibit IV-1. Taxonomic Diversity in Russia's Ecological Regions



Numbers 1 through 44 represent the ecoregions described in Exhibit IV-2. Red lines denote boundaries of large biogeographic regions: I - "European", II - "Caucasian", III - "Siberian", IV - "Far Eastern." (WWF 2001e)

Exhibit IV-2. Ecoregions Depicted in Exhibit IV-1 (WWF 2001e)

Id	Name of Ecoregion	Square Area (thousands of km^2)
1	Ice Arctic deserts and tundra	250.7
2	Yamal and Gydan Arctic tundra	192.4
3	Tundra of Gydan Peninsula	116.9
4	Coastal Arctic tundra of Taimyr Peninsula	163.3
5	Forests, mountain tundra, and meadows of Kamchatka Peninsula	293.5
6	Forests and mountain tundra of Kuril Islands	21.1
7	Coastal tundra of Kola Peninsula	80.9
8	Tundra and forested tundra of the Polar Ural	96.3
9	East Siberian tundra	555.6
10	Tundra of northeast Asia	636.0
11	Arctic desert, tundra, and forested tundra of Taimyr Peninsula and northern Siberian lowland	660.9
12	Kaninsko-Malozemelskaya and Bolshezemelskaya tundra	126.4
13	Ob-Pur and Yenisey northern taiga	303.1
14	Okhotsk northern taiga and thin forests	552.5
15	Southern taiga of the Sakhalin Island	18.8
16	Northern and middle taiga of Pechora plain	240.4
17	North Sosva northern taiga	59.4
18	Mountain tundra and northern taiga of Putoran Lena-Olenek plateaux	922.6
19	Northern taiga of Ob-Nadym plain	271.1
20	Middle taiga of the Sakhalin Island	30.7
21	Northern and middle taiga of Kola Peninsula, Karelia and White Sea coast	244.9
22	Northern taiga and mountain tundra of the Urals	74.4
23	Northern taiga and thin forests of northeastern Siberia	1235.5
24	Steppe and forested steppe of Transbaikal region (1)	15.7
25	Steppe and forested steppe of Transbaikal region (2)	79.8
26	Southern taiga of Baltic plain	93.0
27	Middle taiga of western Siberia	630.9
28	East European northern and middle taiga	388.7
29	Mountain taiga forests and freshwater communities of the Baikal Lake	38.1
30	Middle and southern taiga of Angara river watershed and Yenisey Ridge	426.3
31	Steppe and forested steppe of lowlands and uplands of southern Siberia	204.1
32	Forests of middle and southern Ural	214.6
33	Southern and mountain taiga of the Sayan and eastern Baikal area	236.1
34	Semi-deserts of the Russian plain	133.3
35	Southern taiga of Tobol-Ishim and Vasugan plains	643.9
36	Taiga of middle and eastern Siberia	2526.4
37	Mountain taiga of Transbaikal region	464.4
38	Mountain taiga and steppe of the Altai, Sayan, and eastern Tuva upland	392.9
39	Mixed, broad-leaved forests and forested steppe of the Russian plain	779.2
40	Middle and southern taiga of the southern Far East	722.5
41	Southern taiga and mixed coniferous-broad-leaved forests of the Russian plain	924.4
42	Steppe and forested steppe of southern Ural and western Siberia	808.3
43	Steppe of the Russian plain	603.5
44	Mountain broad-leaved forests and upland steppe of the Caucasus	201.4

C. Aquatic Ecosystems

All the biomes and ecoregions described above include aquatic ecosystems. Freshwater and marine ecosystems are separately treated here to draw attention to their particular biodiversity features and conservation opportunities.

The Russian Federation harbors more aquatic resources than any other country in the world, including more than 120,000 rivers with a total length of 2.3 million km, nearly 2 million lakes, and a marine coastline extending 60,000 km. Many river fish species once common are now rare, in part due to over-fishing, but more importantly due to loss of habitat. Protecting biodiversity in rivers is particularly problematic in Russia, as it is everywhere in the world. Zapovedniks and other protected areas provide minimal security for riverine biodiversity. Limiting the impacts of pollution, soil erosion, dams, and other hydrological engineering projects are some of the most important actions needed to protect rivers, associated wetlands, fluvial discharge areas, and related seas.

Russian jurisdiction extends to 13 seas, including the Black, Azov, Caspian, Baltic, Barents, Laptev, Bering, Okhostsk, and Sea of Japan. Enormous wetlands important to millions of waterfowl and many endangered species are found on the Russia coast, often associated with river deltas. The biodiversity of the marine littoral zone is highest on the coast of the Barents and Okhotsk seas, where tides of up to 5 m create a wide and variable tidal zone. The Sea of Japan is particularly rich in biodiversity due to the presence of warm water coming in from the south. Millions of sea birds live in colonies on the coasts and islands, particularly in the Barents and Okhotsk seas. Important sea mammals include seals and walruses (*Pinnepedia*) and 32 whale species and subspecies. Most of the sea mammals are endangered and many are protected by international treaties.

Marine ecosystems are represented in at least 15 zapovedniks and 2 national parks, with the total area exceeding 120,000 km^2. Coastal wetlands are protected in dozens of conservation areas, including many along the Black Sea, where they form part of an international network of areas designed to protect the biodiversity of the Black Sea.

Lazovski zapovednik. Photo by R. Warner.

D. Threats to Biodiversity

There are major threats to the integrity of ecosystems and biodiversity in Russia, including construction of oil and gas pipelines, exploration of oil and gas deposits, mining, dam and road construction, forest harvesting (up to 300,000 ha per year), wildfires (up to 1,000,000 ha per year), soil erosion, intensive hunting, and unsustainable harvest of aquatic species. Among the most serious threats to biodiversity is the conversion of land from natural vegetation for other uses. Historically, Russia has maintained more natural vegetation cover than most countries, but the remarkable decline in regulatory oversight, coupled with sweeping economic changes driving extractive industries, poses immediate threats to renewable biological resources. Exhibit IV-3 below illustrates the degree of transformation of selected Russian biomes.

Setting Conservation Priorities

A series of international and national research programs has identified regions of the Russian Federation that are essential for global biodiversity conservation. The widely recognized "*Global 200"* report (Olson & Dinerstein 1998) identifies 233 ecoregions of global priority, including 19 in the Russian Federation:

- Altai-Sayan Montane Forests
- Barents-Kara Sea
- Bering Sea
- Caucasus-Anatolian-Hyrcanian Temperate Forests
- Chukote Coastal Tundra
- Daurian Steppe
- Eastern Siberian Taiga
- European Mediterranean Montane Mixed Forests
- Fenno-Scandia Alpine Tundra and Taiga
- Kamchatka Taiga and Grasslands
- Lake Baikal
- Lena River Delta
- Northeast Atlantic Shelf Marine
- Okhotsk Sea
- Russian Far East Rivers and Wetlands
- Russian Far East Broadleaf and Mixed Forests
- Taimyr and Siberian Coastal Tundra
- Ural Mountains Taiga
- Volga River Delta

Exhibit IV-3. Percentage of Land Completely Transformed from Natural State and Major Factors Accounting for Loss of Natural Biological Communities*

Biomes	% of Biomes Converted	Major Factors Accounting for Losses
Polar deserts and tundras	0.06	Mineral resource extraction
Taiga: Northern Central Southern	 0.84 1.8 10.2	 Mineral resource extraction Timber cutting, fires, land plowing Timber cutting, fires, land plowing
Broad-leaved and mixed forests	32.65	Land plowing, urbanization, hydraulic engineering
Forest steppes and steppes	40.50	Land plowing, cattle grazing, water erosion, hydraulic engineering, urbanization
Semiarid and arid lands	21.18	Cattle grazing, irrigation
Mountains of Caucasus and southern Siberia	29.20	Cattle grazing, mineral resource extraction

*Adapted from *Biodiversity Conservation in Russia*, SCEP, 1997.

Some distinct natural communities are impacted more than others. Steppe grasslands on black soils have been almost completely converted to agriculture. Steppes have all but vanished on the Azov-Kuban plain. While less than 22 percent of semiarid and arid lands are reported as converted to other uses, much of what remains has been dramatically transformed by heavy grazing. As much as 20 percent of tundra in some areas is degraded by grazing of domesticated reindeer.

Annually, more than 10,000 km^2 of forest areas are clear-cut, while tens of thousands of square kilometers are lost through forest fires. Though reforestation occurs on most of these lands, it takes time for habitat to be restored. Regeneration of oak woods on alluvial soils takes 300-500 years. Reestablishing larch taiga on the Kamchatka Peninsula takes 800-1,200 years. Arctic tundra takes from 1000-3,500 years to recover from significant human interventions.

Some of the major rivers in Russia have been substantially transformed by the construction of large dams. Enormous reservoirs extend hundreds of kilometers along the Volga, Dnieper, and Don rivers. The remaining natural sections of rivers are subject to flood control and enormous loads of sediment and pollution from agriculture, industry, and urbanization. The biota of the large rivers in European Russia, particularly in the steppe region, is seriously endangered by the loss of riverine habitat.

Loss of habitat is a problem over much of Russia. Some of the changes are at first hard to recognize. For example, 25 percent of total reindeer pastures in the tundra — some 700,000 km^2 — are experiencing substantial loss of native habitat due to overgrazing and other human-caused disturbances that are replacing lichen communities with grassland communities.

Steppe grasslands in the Northern Caucasus mountains and Mediterranean xerophitic forests of the Black Sea coast are already extremely rare, but still suffer further decline. Both of these natural communities are rich in endemic and endangered species. Fragmented patches of Mediterranean xerophitic forests can be found on steep mountain slopes in the vicinity of Novorossiisk, Anapa, and Gelendjik, but they are poorly represented in protected areas.

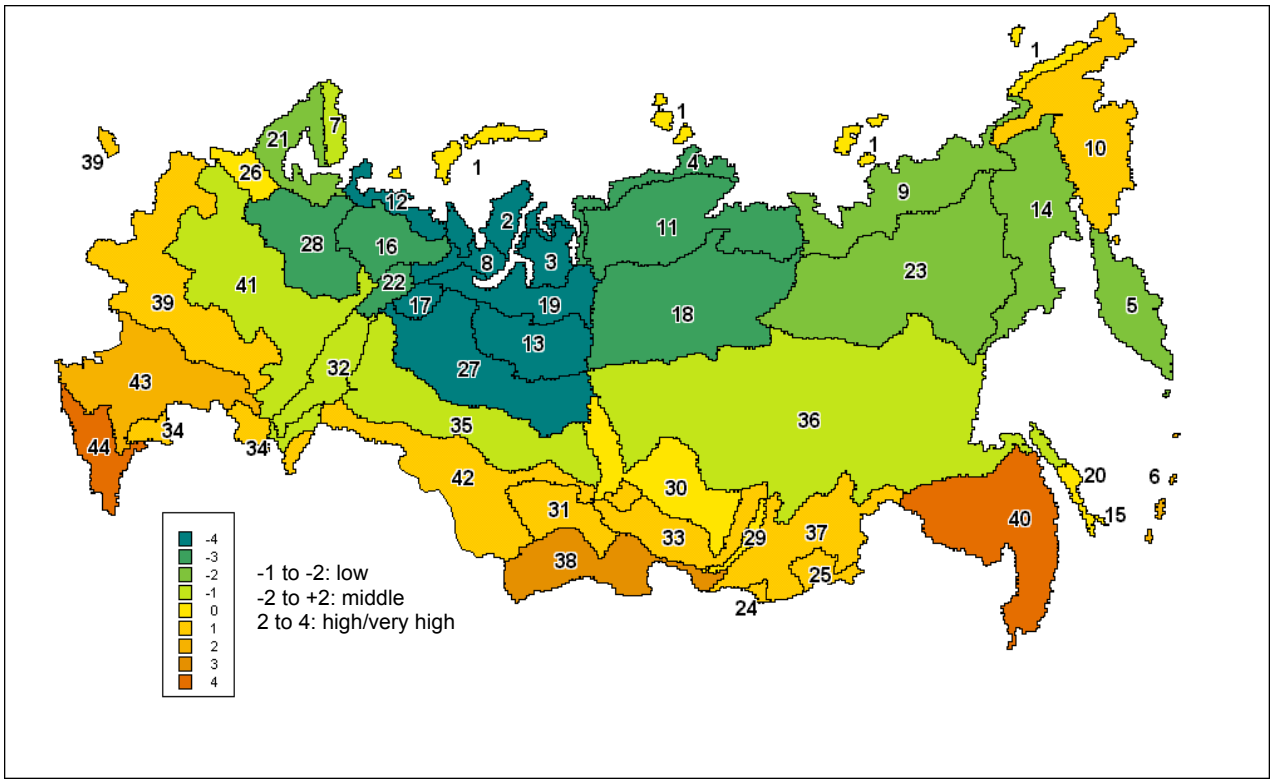
Despite the nationwide loss of habitat, there remains enormous expanses of predominantly natural ecosystems over up to 60 percent of the country, and relatively low population densities, particularly in Asiatic Russia. Unfortunately, this fact has led to a widely shared view of an inexhaustible natural resource base that can be harvested for centuries to come, a perspective that prevails in the country's development plans, resource use policies, and lifestyle.

Projections for the economic recovery of the Russian Federation depend in large part on active exploitation of natural resources in currently undisturbed areas. With this plan, there is a substantial risk that over-exploitation will destroy the biodiversity resources needed to sustain the economy long into the future. In 2001, the government placed a ban on commercial catch of sturgeon, once one of the major export commodities of Russia.

A report by the World Wildlife Fund (2001e) shows that the ecoregions most important for biodiversity are also those currently experiencing the greatest human pressure. The distribution of arable soils, productive pastures, and valuable timber coincides with areas of highest

biodiversity. Hence, there is an inevitable conflict between economic interests and biodiversity conservation, as illustrated in Exhibit IV-4 below.

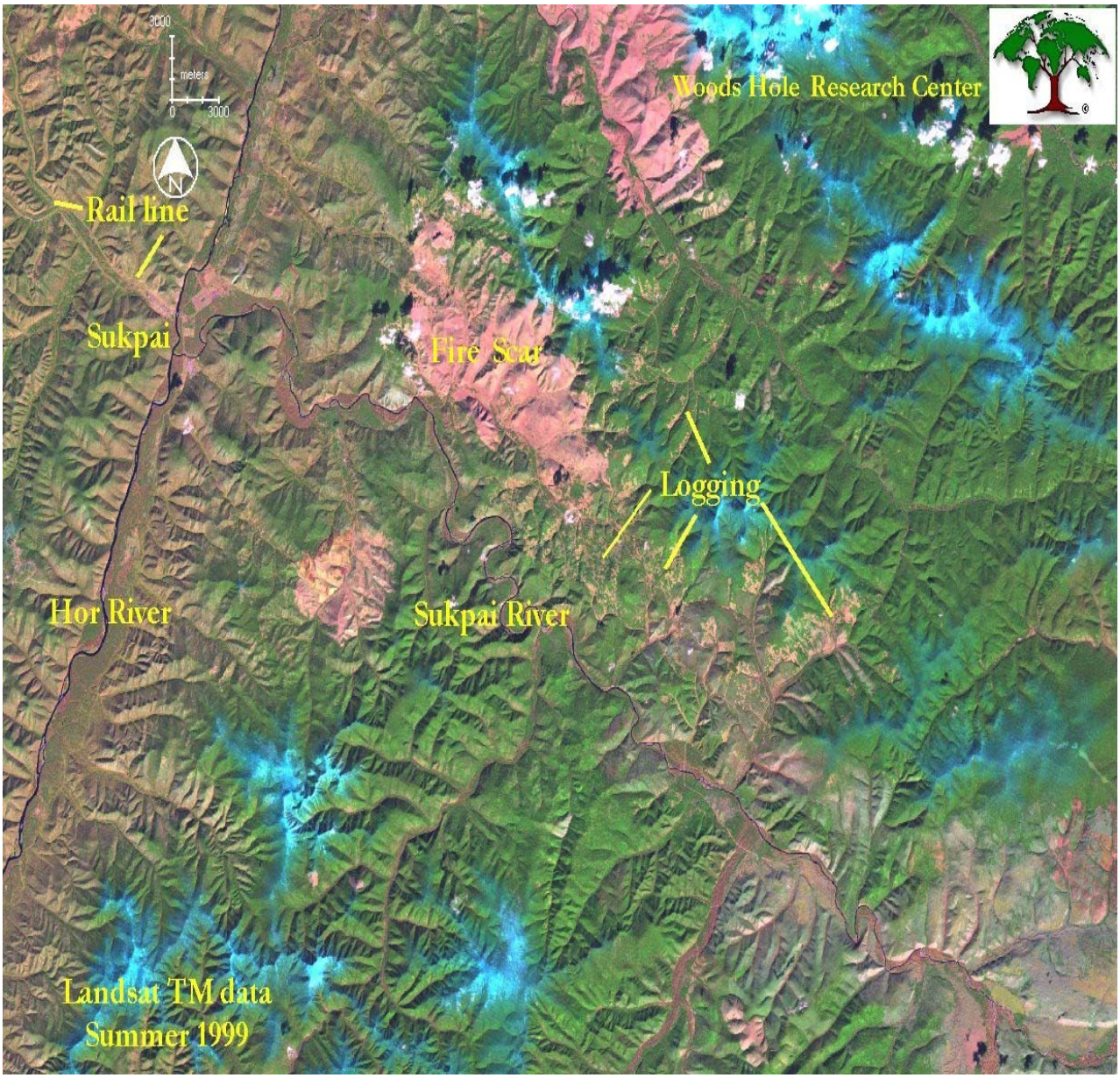
Exhibit IV-4. Estimate of the Degree of Conflict Between Biodiversity Conservation and Regional Economic Interests (WWF, 2001e)



Dobrynin (1996) shows that in the extensive forests of eastern Siberia and the Russian Far East, poorly regulated and undercapitalized logging practices pose the most significant challenge to biodiversity conservation. In addition to the immediate impacts on ground cover, current habitat conversion and surface water harvest practices contribute directly to fuel loading and microclimate changes that spawn spectacular wildfires. According to the Far Eastern Forestry Research Institute, 1,262 fires consumed more than 1.5 million ha in 1998.

Official Russian sources ascribe only 1 percent of man-caused wildfires to "logging" and more than 85 percent to either "careless population" or "unknown" ignitions. While the validity of ignition data is itself questionable, there is widespread agreement outside the Forest Service that the vast majority of large and "catastrophic" fires occur after harvest operations, where cutting practices and slash management allow fires to quickly run out of control. Exhibit IV-5 on the next page illustrates the proximity between harvest operations and large fires in Khavarosk Krai near the Hor River, where small clear cutting and highly selective log removal leave behind some 60 percent of the logged volume as either discarded logs or slash.

Exhibit IV-5. Spatial Relationship Between Forest Harvest Operations and Forest Fires in Khabarovski Krai

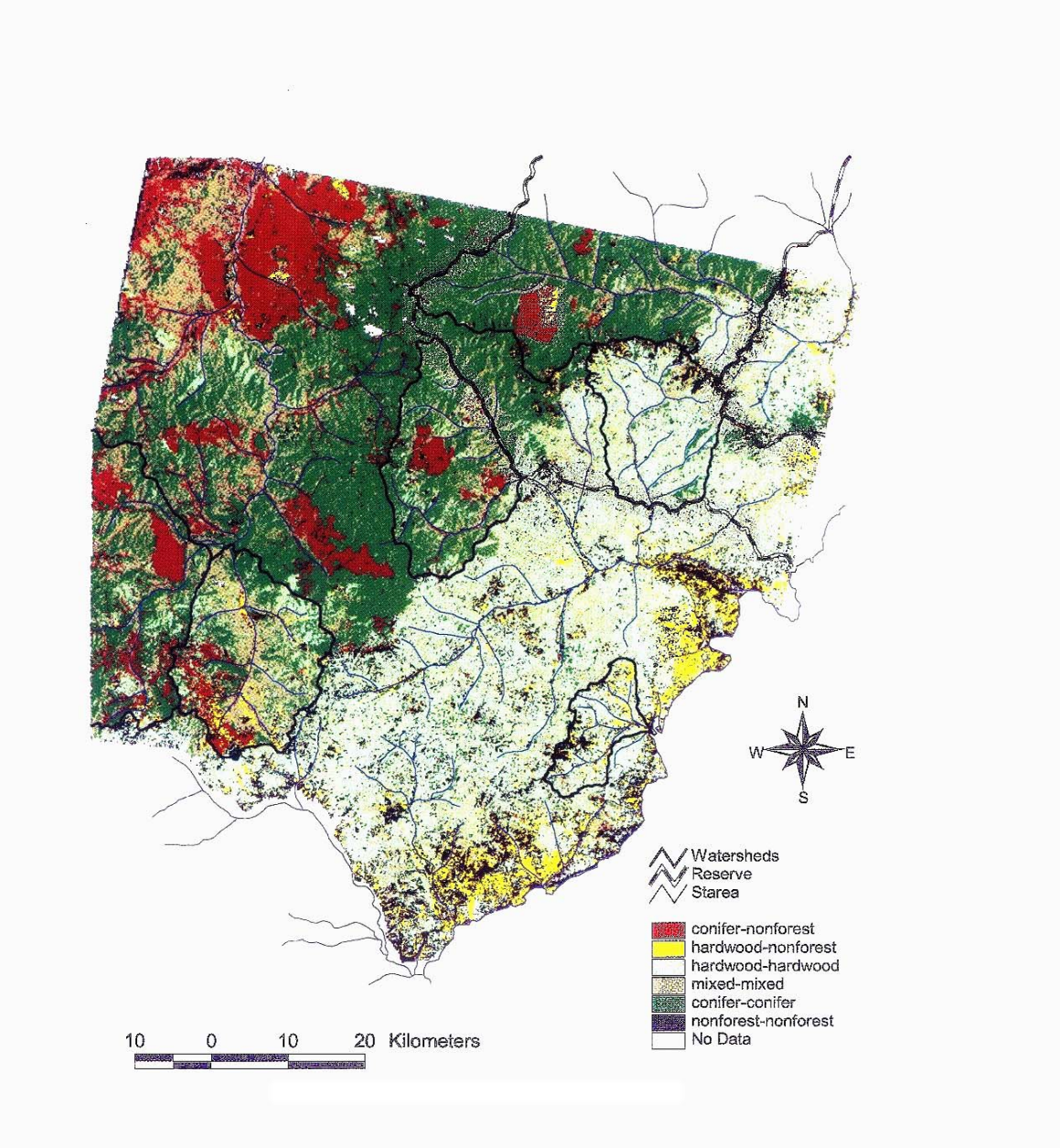


As viewed from a 1999 LandSat Thematic Mapper scene. Image courtesy of Thomas Stone, Woods Hole Research Center.

While fire is a natural element of many of the Russian Far East's ecosystems, the frequency, size, and intensity of fires are now much greater than the historical record shows (Cushman &Wallin 2001). More than 90 percent of the landscape changes occurring in the Sikhote-alin range, home to the densest populations of endangered species in the Russian Far East, are directly due to such catastrophic fires (Cushman & Wallin 2002).

Exhibit IV-6 below illustrates the changes that have occurred between 1972 and 1992. There was agreement among all those interviewed by the assessment team that conversion of forest due to logging and fire has accelerated significantly since 1992.

Exhibit IV-6. Ecological Change in the Sikhote-alin Range Between 1972 and 1992



Sikhote-alin zapovednik, a World Heritage Biosphere Reserve, is located in the northern central area (Cushman & Wallin 2000).

E. Strategic and Policy Framework

The National Environmental Action Plan (NEAP) summarizes the status of Russia's biodiversity: "The indicated data testify about decline of forest conservation, protection, and restoration, caused by extremely unsatisfactory financing of forestry and nature protection activities" (http://www.ecocom.ru/arhiv/ecocom/NEAP/eng/Contents.htm). The NEAP further points to the lack of a legislative base for an inventory of biodiversity and goes on to state: "Resource potential of the flora is frequently used spontaneously and irrationally due to the lack of proper inventory." The report points to the decrease in populations of fish and game species and negative economic consequences. Among its principal findings, the NEAP stresses the need to revise the legal statutes and regulatory programs governing the environment, including biological resources. "The payments for natural resources use are not based on an economic evaluation of natural resources (facilities) and environmental impact," the report states. "The reason is not only and not so much the lack or imperfection of the economic evaluation itself, but because of imperfection of a tax system; without changes in this system it is impossible to increase essentially payments both for environmental impact and for natural resources use." The report cites weaknesses in licensing, permits, and monitoring programs.

To address the problem of biological resources, the NEAP recommends additional actions:

> *"The most urgent tasks are specification and delimitation of authority between federal and regional environmental bodies, creation of new forms of natural resources use management taking into account the interests of subjects of the economic activity."*

Other recommendations of the NEAP include changing tax laws on resource use, conservation of arctic ecosystems, restoration of conservation lands, creation of a state cadastre for natural resources, provisions for environmental auditing and enforcement, stronger controls over marine resources, protection of Red Book species, state control of environment on military lands, ecological-economic zoning, development of a method to determine environmental damage, new laws and procedures for environmental impact assessments, and ecological expertise.

A second set of activities calls for better support to protected areas, environmental and ecological recovery of the Volga River, protection of Lake Baikal and its tributaries, Amur Tiger conservation, and protection of the coasts of the Caspian, Black, and Azov seas. Most of the conditions described and actions called for hold true today, as they did when the NEAP was written in 1998-1999.

The National Biodiversity Conservation Strategy, drafted with assistance from the Global Environment Facility (GEF) and approved by National Biodiversity Forum in June 2001, recommends new policies for biodiversity conservation and use of biological resources. The status of this strategy is unclear since there is no straightforward mechanism for its legal adoption. However, the spirit of the strategy is apparent in an excerpt on the development of a System of Protected Natural Areas (SPNA), shown in the text box on the next page based on an unofficial preliminary translation.

An important recommendation of the National Biodiversity Conservation Strategy is the creation of ecological networks in areas that are already significantly impacted by humans. Ecological

networks are formed by a connected system of natural areas (including protected areas and unprotected lands) to help prevent further decline of biological resources caused by the fragmentation of ecosystems. Ecological networks are also promoted under the Pan-European Biodiversity and Landscape Strategy in which the Russian Federation plays an active role.

There are a number of other strategic documents with regard to biodiversity conservation developed for Russia, including the Tiger Conservation Strategy, the Leopard Conservation Strategy, the Rare Animal Species Conservation Strategies, Wetlands Conservation Strategies, Plant Species Botanical Gardens Preservation Strategies, and others. All these can be considered integral elements of the overall National Biodiversity Conservation Strategy.

National Biodiversity Conservation Strategy of the Russian Federation

Russia's National Biodiversity Conservation Strategy envisions a preventive rather than reactive approach to biodiversity conservation through the design and management of a System of Protected Natural Areas (SPNA). It also calls for wide regional differentiation of SPNA strategies, development of new categories of territorial protection for land conservation, and integration of ecological networks into the region's socioeconomic context.

The document states:

- Differential approach to design of protected natural areas is based on different degrees of anthropogenic transformation of nature in various regions. Therefore:
  - Regions with low levels of population density and development still contain large virtually intact ecosystems with natural cycles and processes at the landscape level still functioning free from significant human interference. In these regions, the main priority is to plan spatial expansion of human infrastructure ("development corridors") in a manner that prevents negative impacts on biodiversity rich areas.
  - In regions with high levels of infrastructure development, ecosystem disturbance, and fragmentation, the first necessity is to secure and restore interconnections between protected natural areas ("ecological corridors"), thus securing some integrated spatial system.
- Priorities in designing land protection regimes also depend on regional characteristics:
  - Undisturbed areas with wide expanses of self-sufficient natural ecosystems require conservation measures preventing human interference into natural development and regeneration processes.
  - In areas with moderate levels of human disturbance and ecosystem fragmentation, a priority should be given to a combination of strict protection measures and many types of partial restrictions (limitations) on land use practices.
  - In densely populated and developed areas, where natural ecosystems are isolated islands within dense networks of human infrastructure, a high priority is given to special management measures aimed at restoration of natural ecosystems.
- Development of SPNAs requires expanding the functional diversity of protected areas, including creation of new categories such as:
  - Traditional land use areas for indigenous peoples
  - Protected old-growth forests
  - Small reserves for reproduction of biota (bird colonies, spawning grounds, seal colonies, etc.)
- SPNA management must be integrated into regional socioeconomic contexts and development processes through:
  - Building public interest in SPNAs (e.g., appreciation of ecosystem services provided by SPNAs)
  - Encouraging indigenous people to participate in SPNA management
  - Preserving traditional land uses and lifestyles (sustaining rare indigenous varieties of livestock, etc)
  - Developing a system of inventories and monitoring biodiversity and bioresources in SPNAs

F. Institutional Framework: Public, Private, NGO, and Academic Sectors

F1. Federal Government

The State Committee on Environmental Protection (SCEP) was until 2000 the federal executive body responsible for environmental protection, conservation of biological diversity, environmental control, environmental impact assessments, and management of protected areas. The Federal Forest Service (FFS) was in charge of forest use, reproduction, and protection. According to Russian laws, these two agencies were responsible for control and enforcement of most of the regulations and procedures related to biodiversity conservation. The Ministry of Natural Resources was responsible for policies related to research, use, and protection of natural and mineral resources, as well as water use and protection.

In 2000, both the SCEP and FFS were transformed into departments within the Ministry of Natural Resources, with significant reductions in staff and field management units. These changes have significantly reduced the federal government's capacity to carry out its legal mandate with regard to biological resources. Some of the recent changes in state government could be beneficial. For example, one directorate of the Ministry of Natural Resources is now responsible for all federal protected areas. However, the new directorate is severely understaffed, with just 12 employees responsible for coordination and oversight of the system of protected areas. New protected area divisions are being established in each of the seven interregional departments of the Ministry of Natural Resources to facilitate federal-regional cooperation in protected areas planning and management.

Other federal agencies that have responsibilities for biological resources include:

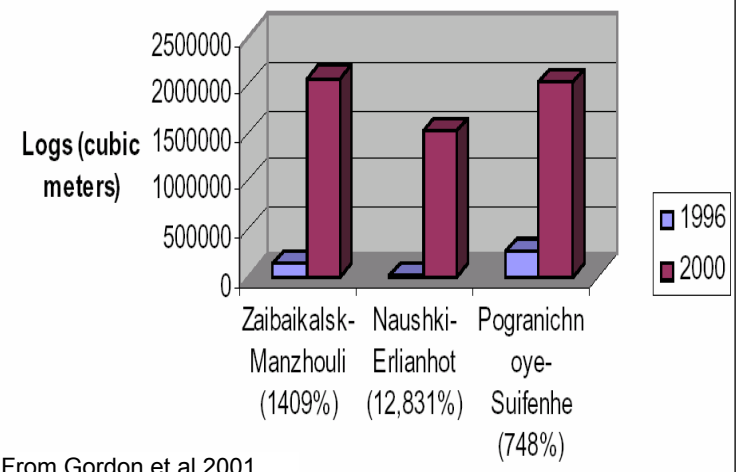
- Ministry of Agriculture and Food — controls, protects, and manages game species
- Committee on Fisheries — responsible for managing and protecting economically valuable aquatic species
- Ministry of Science and Technology — implements state policy in research and technology, including biotechnology
- Defense Ministry — manages resources on military lands
- Ministry of Regional Affairs — implements regional biodiversity conservation programs
- State Customs Committee — controls exports and imports of biodiversity species
- Federal Border Guard Service — responsible for marine biological resource protection and border control for trade in biological resources, including rare species
- State Committee of the Russian Federation on Statistics (Goskomstat) — provides statistics on the use of biological resources

Biodiversity legislative initiatives are primarily the responsibility of the Russian Federation Federal Assembly State Duma Committee on Natural Resources and the Committee on the Environment. However, local legislative bodies (e.g., in oblasts and krai) are also passing laws, and these sometimes conflict with federal laws.

The decision to dissolve the SCEP and the transference of the FFS to the Ministry of Natural Resources have reduced the government's ability to oversee forest management and monitor or reduce environmental impacts. Changing and ambiguous authorities for management oversight between the federal and provincial governments further undermine regulation and provide an institutional environment ripe for illegal and over-exploitation of forest resources. Lack of oversight also encourages extreme waste and removal of the most valuable timber (high grading), with significant damage to the residual stand. It is estimated that 40 to 60 percent of the logged volume is lost or irreparably damaged during extraction and transport (Sheingauz 1998) — four times the industry average in developed countries.

To make matters worse, the erosion of public forestry oversight has occurred during a simultaneous decline in federal customs controls and trade reporting capability. Fueled largely by an exploding demand for wood products in China, the illegal logging and trade in Russian forest products is probably unparalleled anywhere in the world. Government officials freely acknowledge that at least 20 percent of harvesting is done without appropriate permitting, and some sources claim that this is actually closer to 50 percent (Gordan 2000). Russia already provided 42 percent of China's total roundwood in 2000 and, according to Chinese custom data (Yamane & Wen-Ming 2000), exports of wood from Russia to China have nearly doubled every year since 1995. Exhibit IV-7 suggests that exports from Russia may be significantly higher, and the same sources (Gordon et al 2001) claim that export statistics under-represented traded volumes by at least 35 percent.

Exhibit IV-7. Log Import from Russia to China Through Three Main Gateways



From Gordon et al 2001.

The fiscal situation is clearly worsened by the inability to capture royalties or taxes on forest products. The economic and development consequences of illegal activities, inefficient harvest and conversion, and proliferation of uncontrollable wild fires are not well described. Conservative estimates of the value of standing timber consumed in the 1998 fires were $200 million. The consequences for biological diversity are equally costly and even less understood. They include population losses, long-term habitat destruction, and downstream impacts on fisheries.

F2. Regional Governments

Regional governments (oblasts, krai, and republics) also have responsibilities for biological resource management and protection. As noted in the NEAP and numerous other documents (e.g., World Bank 1998, WWF 2001) and widely acknowledged by nearly everyone involved,

regional government agencies have little or ambiguous authority over biological resources. Despite this ambiguity, some local governments are enacting laws, defining policies, detailing management and enforcement procedures, and increasing their staff. For example, the Khabarovsk regional administration created two new divisions in its Department of Natural Resources to make up for capacities lost with the dissolution of federal environmental agencies. Some of these changes are in direct response to the apparent decline of federal activities in these areas. Regional governments are also responsible for managing and protecting a significant part of the network of protected areas. In fact, many biodiversity planning, financing, and management activities are undertaken at the local level. Regional agencies, municipalities, and local communities (villages, native communities) all have roles in biodiversity conservation.

F3. Nongovernmental Organizations

NGOs in Russia contribute to policy formulation and carry out projects related to biodiversity conservation. Environmental NGOs play a particularly significant role in educating the public about the state of biodiversity and the roles and responsibilities of citizens with regard to biodiversity conservation. These organizations have been instrumental in the development of the NGO community in Russia even before 1992. The more active NGOs involved in biodiversity conservation include the Socio-Ecological Union (an association of local, national, and international groups), the Biodiversity Conservation Center, and the Russian Bird Conservation Union, which has more than 20 local chapters.

Several international conservation NGOs have chapters and local offices in Russia, and make a significant contribution to policy development and management of local programs. They also play an important role in publicizing Russian biodiversity activities at the global level. Greenpeace, WWF, the World Conservation Union (IUCN), and Wetlands International are among the most prominent international NGOs working in Russia.

Overall, there are more than 800 environmental NGOs in Russia, including many working at the regional and local scale. The “Call of the Taiga” environmental center (Vladivostok), the “Bars” Student Group for Nature Protection in Blagoveshensk, and the Ecological Center Dront (Dodo) in Nizhni Novgorod are but a few examples. While several national and local NGOs are large and strong, many NGOs are entirely based on volunteer labor or on brief periods of work depending on the

Urals mountains. Photo by A. Pazhenkov.

funding available for a project. The growth of locally based environmental NGOs, branches, or networks of national NGOs is slow. The environmental NGO community would benefit from an increase in grassroots programs that are associated with and supported by regional and national networks.

Support Centre for Volga-Urals Ecological Network

Some of the most diverse riches of European biodiversity are found between the Volga River and Urals Mountains in various landscapes ranging from dry steppes to alpine meadows, and from old-growth oak groves to coniferous mountain taiga. To preserve this biodiversity, several conservation groups joined forces under the umbrella of the Support Centre for Volga-Urals Ecological Network to create an interconnected network of protected areas. This NGO consortium brings together scientists, officials, conservation activists, and citizens concerned with biodiversity conservation in the regions where they live and work.

The group is primarily active in the Samara and Orenburg regions, and the Bashkortostan and Tatarstan republics. NGOs there have developed a comprehensive inventory of valuable biodiversity areas and a draft blueprint for an ecological network in each of the four regions. They have also planned and negotiated for the establishment of several dozen protected areas, prevented the logging of one of the largest remaining broadleaf-coniferous old-growth forests, and published and disseminated comprehensive data on natural heritage in these regions. Recent innovative programs include enforcement of Russian legislation on Red Data Book species to protect well-documented breeding habitats of endangered species prior to the establishment of a specific protected area.

F4. Academia and Research Institutes

Universities and other training and research institutes are an important part of the biodiversity infrastructure. In addition to training scientists, they conduct most of the basic research on species and ecosystems, systematically documenting their data and findings. Their publications and scientific collections (i.e., museums and herbaria specimens) are the foundation for understanding biodiversity. There are hundreds of institutions providing these basic services in Russia. To mention a few, basic research is conducted by staff of the Russian Academy of Sciences, Academy of Agriculture, and Academy of Medical Sciences, among others. Applied research that was formerly under the State Committee for Environmental Protection, the zapovedniks, and the Forest Service is now concentrated in the Ministry of Natural Resources, though likely with less combined investment and impact. Universities are at the forefront of science education and research. In addition, professional societies such as the Geographic, Botanical, Ornithological, Herpetological, Entomological Society and the Moscow Society of Naturalists promote research and professional publications.

G. Legislative Framework

National environmental legislation has evolved considerably over the past 10 years. Nearly all environmental authority rests with federal agencies, while oblasts and krai have little jurisdiction over the environment, including biological diversity. Key legislation regulating biodiversity includes the following:

- The 1991 Law on Environmental Protection forms the basis for environmental legislation, defining standards for environmental quality and the environmental impact assessment process, and helping define protected areas. The law has been amended several times.

- The 1995 Federal Law on Environmental Impact Assessments requires impact assessments for many economic development projects. The law also covers environmental protection and use of fauna and habitats.

- The Forest Code of 1997 governs the protection, use, and management of forest resources.

- The 1995 Federal Law on the Russian Federation Continental Shelf provides protection mechanisms for marine biodiversity on the continental shelf.

- The 1995 Water Code provides protection of aquatic ecosystems from pollution and land-based degradation.

- The 1996 Federal Land Use Act allows for protection of biodiversity from activities such as draining of wetlands to extend agricultural lands.

- The Code of Administrative Law Violations and Criminal Code include articles on liability for ecological law violations, including mechanisms for protection of Red Book species, protected areas, forests, continental shelf, etc.

- The 1996 Law on Environmental Impact Assessment describes assessment and evaluation procedures for development projects and may also be applied to land management plans. These procedures are carried out at the regional and federal levels, depending on the scale of the project submitted.

These are just a sample of the dozens of laws potentially affecting how biological resources are managed in Russia. While many of these laws are well conceived, there are significant problems in their implementation. The procedures for implementing the laws are not always described in enough detail to be applied with any consistency or to hold anyone accountable. For example, implementation of environmental impact assessments has often come too late, after developers had invested resources, to the extent that rejection of the project was politically impossible. Furthermore, although public participation is envisioned as an intrinsic part of environmental impact assessments, the public is not always invited to comment on a proposed project.

Increasingly, regional legislatures are passing laws and devising procedures to manage and protect biological resources. However, these often conflict with the nearly total federal jurisdiction over biological resources.

G1. International Biodiversity Agreements

Russia signed the Convention on Biological Diversity (Rio Convention, http://www.biodiv.org) in 1995 and submitted its first national report two years later. In 2001, the National Biodiversity Conservation Strategy — another requirement of the convention — was prepared, though the strategy's official adoption and eventual implementation are still in question. The government also developed a clearinghouse mechanism on biodiversity, with the national focal point located in the Russian Conservation Monitoring Center, established with assistance from the GEF-

funded Biodiversity Conservation in the Russian Federation project. The center is responsible for information support on biodiversity conservation. The precipitous decline of biodiversity staff in the reorganized Ministry of Natural Resources makes it unlikely that the federal government will be able to implement many of its obligations under the Rio Convention.

In 1975, the former Soviet Union joined the Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar, http://www.ramsar.org). In 1994, the Russian government significantly expanded the number of sites protected under the Ramsar Convention. Today, there are 35 recorded wetlands of international importance located in 21 regions throughout Russia.

In 1976, Russia signed the Convention on International Trade in Endangered Species of Fauna and Flora (CITES, http://www.cites.org), which controls the import and export of material from plants and animals identified under the treaty. Implementation of CITES has gradually improved in recent years, largely in response to the active interest of TRAFFIC International (http://www.traffic.org). For example, TRAFFIC has provided training to members of the customs service. However, the enormous profits that can be made trading medicinal products in Asian markets continue to threaten the extinction of many high-profile species, including the large cats.

Russia has signed the Agreement on the Protection of the Polar Bear and bilateral agreements on the Protection of Migratory Birds and their Habitats concluded with India, Japan, South and North Korea, and the United States. Russia also participates in the International Convention on the Control over Whaling, as well as the Conservation of Arctic Flora and Fauna (CAFF, http://www.grida.no/caff) ratified by Canada, Denmark, Greenland, Finland, Iceland, Norway, Russia, Sweden, and the United States. CAFF's agenda includes conservation of species and habitats in the Arctic.

It is notable that Russia has not joined the Convention on Migratory Species (Bonn Convention, http://www.wcmc.org.uk/cms) or the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention, http://www.nature.coe.int/english/cadres/bern.htm). Adoption of the Bern Convention is required for membership in the European Council and participation in the Pan-European Landscape and Biological Diversity Strategy.

H. Protected Areas

Since the beginning of the 20th century, protected areas have been highly effective tools for biodiversity conservation in Russia. Presidential Decree No. 1155 of 1992 declared the creation, management, and protection of natural areas as a priority for the preservation of Russia's natural heritage. The law on "Specially Protected Nature Areas" identifies the types of protected nature areas and describes their purpose and degree of protection. Only zapovedniks (strict nature reserves) preclude economic development activity. All other types of federal and regional natural area reserves allow for development activities and nature protection. Exhibit IV-8 on the next page describes the categories, number, and size of protected areas.

All zapovedniks and national parks are federal conservation agencies with on-site staff. The federal conservation management agency holds title to the land, except for a few agricultural holdings in some national parks.

Zakazniks (nature reserves) and nature monuments have site-specific management restrictions designed to limit human activity and avoid damaging specific natural features. However, the lands are titled to other agencies that might manage the areas as forest management units, agricultural enterprises, or other development uses. The vast majorities of zakazniks and nature monuments do not have any management staff in the field and are controlled through infrequent inspections by regional or federal conservation agency staff. While the enormous extent of zakazniks and nature monuments are a crucial component of the Russian ecological network, they are extremely vulnerable to changes in land ownership and local development initiatives.

Exhibit IV-8. Protected Areas in Russia

PA Categories	Total number	Area million hectares (% of Russia's territory)
Zapovedniks	100	33,5 (1,56%)
including Biosphere Reserves	22	7,0
National Parks	35	6,7(0,41%)
Zakazniks		
a) Federal	68	12,5 (0,73%)
b) Regional	≈3000	67,8 (3,97%)
Nature Monuments		
a) Federal	27	0,19
b) Reginal	≈10 000	2,6 (0,14 %)
Nature parks	31	13,2 (0,77%)
Other regional PA	≈2300	52,0 (3%)
Forests of theGroup I (excluding those within PNAs)		271,000 (16,4%)

World Wildlife Fund, 2001

These four types of protected nature areas (zapovedniks, national parks, zakazniks, and nature monuments) cover about 137 million ha, or 7.6 percent of the country's territory. However, only slightly more than 40 million ha of these lands actually belong to a state conservation agency and have management staff in the field.

Acting under a provision of the federal law on "Specially Protected Natural Areas," legislative bodies in various regions have also identified dozens of new types of protected natural areas: traditional land use zones, ethnological parks, critical species habitat, ecological corridors, resource reserves, protected landscapes, etc. The total area covered by these new regional categories exceeds 52 million ha, or approximately 3 percent of Russia's territory. Unfortunately, there is little consistency in the management provisions of these lands.

There are other categories of lands with some sort of land management restrictions that may help protect biological diversity, including water protection zones, recreational zones, and cedar-nut growths. Most of these areas are controlled by natural resource management units (forest, water, game management authorities) and are included in physical planning schemes. One of the most widespread categories is the Forests Group I, recognized by the Forest Code and other legal acts related to forest management.

Recent changes in the Ministry of Natural Resources have drastically reduced the national and regional staffing levels of departments in charge of supporting and overseeing protected areas.

This has made it necessary for regional governments to play a larger role in protected areas management. This need is already widely recognized by many regional governments, which have adopted a wide array of measures to protect natural heritage. For example, the Orel region adopted special legislation on a regional ecological network, the Sakha-Yakutia Republic set aside up to 20 percent of its territory for regional nature reserves, the Tatarstan Republic is establishing special management units, and the Khabarovsk region is undertaking a gap analysis study to identify biodiversity-rich areas and priorities for conservation.

The shift in management responsibilities from the federal government to the regional governments is incomplete. There are some indications that regional commitments are increasing, and there appears to be an increasing ability at the individual park level to increase earnings through gate receipts and concessions. However, as the figures indicate, the role of international donors remains important and key to the proper functioning of the zapovedniki.

Lastly, the nascent role and contribution of private Russian donors underlines a current shortcoming as well as an opportunity. Individual and corporate contributions have increased in Russia, but are still discouraged by current laws and policies.

In summary, the political, institutional, and economic environment for the sustainable management of Russia's important biodiversity and protected areas is severely challenged. Reductions in budgets and management staff are taking place within demoralized public sector agencies responsible for protecting key natural assets. This erosion of human capacity and regulatory authority is occurring at precisely the same time that short-term commercial interests are taking advantage of natural resources.

ANNEX A

Sections 117 and 119 of the Foreign Assistance Act

Foreign Assistance Act, Part I, Section 117 - Environment and Natural Resources

---

Sec. 117\71\ Environment and Natural Resources.--

(a) The Congress finds that if current trends in the degradation of natural resources in developing countries continue, they will severely undermine the best efforts to meet basic human needs, to achieve sustained economic growth, and to prevent international tension and conflict. The Congress also finds that the world faces enormous, urgent, and complex problems, with respect to natural resources, which require new forms of cooperation between the United States and developing countries to prevent such problems from becoming unmanageable. It is, therefore, in the economic and security interests of the United States to provide leadership both in thoroughly reassessing policies relating to natural resources and the environment, and in cooperating extensively with developing countries in order to achieve environmentally sound development.

\71\ 22 U.S.C. 2151p. Sec. 117 was redesignated from being sec. 118 by sec. 301(1) of Public Law 99-529, resulting in the creation of two sections 117. Sec. 301(2) of Public Law 99-529 (100 Stat. 3014) further deleted subsec. (d) of that section, which dealt with tropical forests, and then sec. 301(3) of Public Law 99-529 added a new section 118 entitled "Tropical Forests." This section, as added by sec. 113 of Public Law 95-88 (91 Stat. 537) and amended by sec. 110 of Public Law 95-424 (92 Stat. 948) and sec. 122 of Public Law 96-53 (93 Stat. 948), was further amended and restated by sec. 307 of the International Security and Development Cooperation Act of 1981 (Public Law 97-113; 95 Stat. 1533). This section previously read as follows: "Sec. 118. Environment and Natural Resources--

> (a) The President is authorized to furnish assistance under this part for developing and strengthening the capacity of less developed countries to protect and manage their environment and natural resources. Special efforts shall be made to maintain and where possible restore the land, vegetation, water, wildlife and other resources upon which depend economic growth and human well-being especially that of the poor.
>
> (b) In carrying out programs under this chapter, the President shall take into consideration the environmental consequence of development actions." See also sec. 534 of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, 1990 (Public Law 101-167; 103 Stat. 1228), as amended, relating to "Global Warming Initiative." See also sec. 533 of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, 1991 (Public Law 101-513; 104 Stat. 2013), as amended, relating to "Environment and Global Warming." See also sec. 532 of the Foreign Operations, Export

Financing, and Related Programs Appropriations Act, 1993 (Public Law 102-391; 106 Stat. 1666), relating to "Environment."

(b) In order to address the serious problems described in subsection (a), the President is authorized to furnish assistance under this part for developing and strengthening the capacity of developing countries to protect and manage their environment and natural resources. Special efforts shall be made to maintain and where possible to restore the land, vegetation, water, wildlife, and other resources upon which depend economic growth and human well-being, especially of the poor.

(c)(1) The President, in implementing programs and projects under this chapter and chapter 10 of this part,\72\ shall take fully into account the impact of such programs and projects upon the environment and natural resources of developing countries. Subject to such procedures as the President considers appropriate, the President shall require all agencies and officials responsible for programs or projects under this chapter—

\72\ Sec. 562 of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, 1991 (Public Law 101-513; 104 Stat. 2026), added a new chapter 10 to part I of this Act, providing for long-term development in sub-Saharan Africa, and made a conforming amendment by inserting "and chapter 10 of this part" here.

(A) to prepare and take fully into account an environmental impact statement for any program or project under this chapter significantly affecting the environment of the global commons outside the jurisdiction of any country, the environment of the United States, or other aspects of the environment which the President may specify; and

(B) to prepare and take fully into account an environmental assessment of any proposed program or project under this chapter significantly affecting the environment of any foreign country. Such agencies and officials should, where appropriate, use local technical resources in preparing environmental impact statements and environmental assessments pursuant to this subsection.

(2) The President may establish exceptions from the requirements of this subsection for emergency conditions and for cases in which compliance with those requirements would be seriously detrimental to the foreign policy interests of the United States.

Foreign Assistance Act, Part I, Section 119 - Endangered Species

---

Sec. 119\75\ Endangered Species--

(a) The Congress finds the survival of many animal and plant species is endangered by overhunting, by the presence of toxic chemicals in water, air and soil, and by the destruction of habitats. The Congress further finds that the extinction of animal and plant species is an irreparable loss with potentially serious environmental and economic consequences for developing and developed countries alike. Accordingly, the preservation of animal and plant species through the regulation of the hunting and trade in endangered species, through limitations on the pollution of natural ecosystems, and through the protection of wildlife habitats should be an important objective of the United States development assistance.

\75\ 22 U.S.C. 2151q. Sec. 119, pars. (a) and (b) were added by sec. 702 of the International Environment Protection Act of 1983 (title VII of the Department of State Authorization Act, Fiscal Years 1984 and 1985, Public Law 98-164; 97 Stat. 1045).

(b) \75\ In order to preserve biological diversity, the President is authorized to furnish assistance under this part, notwithstanding section 660,\76\ to assist countries in protecting and maintaining wildlife habitats and in developing sound wildlife management and plant conservation programs. Special efforts should be made to establish and maintain wildlife sanctuaries, reserves, and parks; to enact and enforce anti-poaching measures; and to identify, study, and catalog animal and plant species, especially in tropical environments.

\76\ Section 533(d)(4)(A) of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, 1990 (Public Law 101-167; 103 Stat. 1227), added “notwithstanding section 660” at this point.

(c) \77\ Funding Level.--For fiscal year 1987, not less than $2,500,000 of the funds available to carry out this part (excluding funds made available to carry out section 104(c)(2), relating to the Child Survival Fund) shall be allocated for assistance pursuant to subsection (b) for activities which were not funded prior to fiscal year 1987. In addition, the Agency for International Development shall, to the fullest extent possible, continue and increase assistance pursuant to subsection (b) for activities for which assistance was provided in fiscal years prior to fiscal year 1987.

\77\ Pars. (c) through (h) were added by sec. 302 of Public Law 99- 529 (100 Stat. 3017).

(d) \77\ Country Analysis Requirements.--Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of-

(1) the actions necessary in that country to conserve biological diversity, and

(2) the extent to which the actions proposed for support by the Agency meet the needs thus identified.

(e) \77\ Local Involvement.--To the fullest extent possible, projects supported under this section shall include close consultation with and involvement of local people at all stages of design and implementation.

(f) \77\ PVOs and Other Nongovernmental Organizations.-- Whenever feasible, the objectives of this section shall be accomplished through projects managed by appropriate private and voluntary organizations, or international, regional, or national nongovernmental organizations, which are active in the region or country where the project is located.

(g) \77\ Actions by AID.--The Administrator of the Agency for International Development shall-

(1) cooperate with appropriate international organizations, both governmental and nongovernmental;

(2) look to the World Conservation Strategy as an overall guide for actions to conserve biological diversity;

(3) engage in dialogues and exchanges of information with recipient countries which stress the importance of conserving biological diversity for the long-term economic benefit of those countries and which identify and focus on policies of those countries which directly or indirectly contribute to loss of biological diversity;

(4) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity;

(5) whenever possible, enter into long-term agreements in which the recipient country agrees to protect ecosystems or other wildlife habitats recommended for protection by relevant governmental or nongovernmental organizations or as a result of activities undertaken pursuant to paragraph, and the United States agrees to provide, subject to obtaining the necessary appropriations, additional assistance necessary for the establishment and maintenance of such protected areas;

(6) support, as necessary and in cooperation with the appropriate governmental and nongovernmental organizations, efforts to identify and survey ecosystems in recipient countries worthy of protection;

(7) cooperate with and support the relevant efforts of other agencies of the United States Government, including the United States Fish and Wildlife Service, the National Park Service, the Forest Service, and the Peace Corps;

(8) review the Agency's environmental regulations and revise them as necessary to ensure that ongoing and proposed actions by the Agency do not inadvertently endanger wildlife species or their critical habitats, harm protected areas, or have other adverse impacts on biological diversity (and shall report to the Congress within a year after the date of enactment of this paragraph on the actions taken pursuant to this paragraph);

(9) ensure that environmental profiles sponsored by the Agency include information needed for conservation of biological diversity; and

(10) deny any direct or indirect assistance under this chapter for actions which significantly degrade national parks or similar protected areas or introduce exotic plants or animals into such areas.

(h) \77\ Annual Reports.--Each annual report required by section 634(a) of this Act shall include, in a separate volume, a report on the implementation of this section.

ANNEX B

Scope of Work

The Contractor shall perform the following activities:

A) Pre-travel informational meetings and information gathering. Prior to traveling to the field, the contractor is expected to:

1. Hold meetings with the Bureau Environmental Officer (BEO) of USAID's ENI Bureau in Washington to ensure full understanding of USAID Environmental Procedures, the role of the Regional Bureau in environmental compliance, and purpose of this assignment. This would include policy decisions and approaches which the BEO and Agency Environmental Advisor are taking as per their authority under Reg. 216, which may not be explicit in general legal documentation.

2. Gather existing, relevant background information on Russia's natural resources base and begin identifying organizations and donors involved in the sector. Thoroughly review the following studies: "Biodiversity Conservation in Russia" [GEF publication, 1997] and "Conserving Russia's Biological Diversity" [WWF, 1994].

3. Meet or speak with key stakeholders or managers at the World Bank, USDA Forest Service, U.S.-based NGOs, including World Wildlife Fund, WRI, and WCS or other organizations involved in biodiversity conservation in Russia or relevant regional efforts.

B) Field a team to conduct an overview and general analysis of the country's biodiversity and its current status. Upon arriving in Russia, the team will:

1. Meet with USAID/Russia to get a solid understanding of Mission program goals and objectives under its proposed updated strategy; perspectives of this assignment and specific interests for the team, including advice and protocol on approaching USAID partners and host country organizations with respect to this assignment. The team shall be aware of sensitivities related to an assessment exercise (i.e. the potential for raising expectations, and the need to be clear as to the purpose of the assessment) and respect Mission guidance. The team will discuss organizations to be contacted and any planned site visits with the Mission and coordinate as required. USAID/Russia will facilitate meetings with other USAID Strategic Objective teams.

2. Hold meetings with donor organizations, NGOs, relevant GoR agencies, and other organizations that are knowledgeable about biodiversity conservation or are implementing noteworthy projects, and gather information locally.

3. Conduct no more than three priority site visits, which would supplement understanding of USAID's program or of biodiversity issues which arise in interviews and literature, or would confirm information in previous assessments. One visit shall include the Russia

Far East. The site for the second or third field visit will be determined by the team during the assessment in consultation with USAID.

C) Assess and summarize the needs for biodiversity conservation in Russia based on key threats and analysis of country, donor, and NGO responses to meet these needs. Prepare a report on the status of biodiversity and conservation efforts in Russia and potential implications for USAID or other donor programming and environmental monitoring which shall define the actions necessary for conservation. The report shall include descriptions of:

- Major ecosystem types, highlighting important, unique aspects of the country's biodiversity, including important endemic species and their habitats.

- Natural areas of critical importance to biodiversity conservation, such as forests, wetlands, coastal areas critical for species reproduction, feeding or migration, if relevant.

- Plant and animal species which are endangered or threatened with extinction. Endangered species of particular social, economic or environmental importance should be highlighted and described, as should their habitats. Technical information resources such as the IUCN red list and their Web sites should be referenced for future Mission access as required.

- Recent, current and potential *primary* threats to biodiversity whether they are ecological (i.e. fire, pests), related to human use (i.e. agriculture, contamination), or institutional (i.e. failed policy) or transboundary issues as appropriate. These should emerge from a general assessment of national policies and strategies and their effectiveness, and issues related to institutional capacity, trade, private sector growth, participation in international treaties, and the role of civil society.

- Conservation efforts, their scope and effectiveness. This section should also include recent, current and planned activities by donor organizations that support biodiversity conservation, an identification of NGOs, universities, and other local organizations involved in conservation, and a general description of responsible government agencies. A general assessment of the effectiveness of these policies, institutions, and activities to achieve biodiversity conservation should be included. Priority conservation needs which lack donor or local support should be highlighted.

- An assessment of how USAID's program and proposed country strategy meets the needs for biodiversity conservation. This could include potential opportunities for USAID to contribute biodiversity conservation, consistent with Mission program goals and objectives, through strategic objectives other than environment.

If any perceived areas of concern related to USAID's program and its contribution or impact arise during this assessment, the contractor shall provide views and suggestions directly to the Mission Environmental Officer in a separate briefing.

ANNEX C

Interview List

Alekesy Apanaskevich, Vice Director for Marketing, Kovcheg LTD, Vladivostok

Elena Armand, Project Manager, Global Environment Facility (GEF) Biodiversity Conservation Project, Center for Project Preparation and Implementation (CPPI)

Kevin Armstrong, USAID/Russia

Nikolay Balagansky, Chief of the Board, Board of Hunting Economy Khabarovsk Territory, Khabarovsk

Ivan Blokov, Campaigns Director, Greenpeace, Moscow

Mila Bogdan, Director, Institute for Civic Initiatives Support, Initiative for Social Action and Renewal in Eurasia (ISAR), Moscow

Elena Bondarchuk, Environmental Projects Coordinator, Institute for Sustainable Communities

Jeanne Briggs, Desk Officer, Moldova and Belarus, USAID/Washington

Chris Cavanaugh, Director, Promoting and Strengthening Russian NGO Development Program, International Research & Exchange Board (IREX), Moscow

Alexander Chebov, Leading Specialist in Coastal Fishing, Primorsky Territori Government, Fishery Committee, Vladivostok

Yulia Doroshenko, Senior Resident, Program Officer Assistant, National Democratic Institute for International Affairs (NDI), Samara

Irina Dvoryanchikiova, Assistant Coordinator, Samara Regional Initiative, U.S. Department of State

Alexander Ermolin, Chairman, Interregional Nongovernmental Organization for Sustainable Nature Use, KRECHET, Khabarovsk

Laura Fainzilberg, Regional Director, NIS & Eastern Europe, Foundation for International Community Assistance (FINCA), Moscow

Jeff Ferry, Program Director, Microfinancing Program, Foundation for International Community Assistance (FINCA), Samara

Alekey Grigoriev, Expert, Socio-Ecological Union

Alicia Grimes, USAID, Europe and Eurasia Bureau

Benjamin Hanson, Coordinator, Samara Regional Initiative, U.S. Department of State

Michael Harvey, Country Representative, ACDI/VOCA

Erin Hughes, Winrock International

Brooke Isham, Director, Office of Economic Policy Reform, USAID/Russia

Michael Jenkins, Executive Director, Forest Trends

Larisa Kabalik, Zov Taigi Environmental Center, Vladivostok

Valery Kan, Chief Specialist of International Collaboration and Links Department, Natural Resources Department of the Russian Far East, Ministry of Natural Resources, Khabarovsk

Yuriy Kazakov, Environmental Policy Advisor, Office of Business Development and Investment, USAID/Moscow

Eliza Klose, Executive Director, ISAR, Washington, D.C.

Aleksei Knijnikov, Program Coordinator, Caspian Project, Institute for Civic Initiatives Support, ISAR, Moscow

Steven Kohl, Russia-China Program Coordinator, U.S. Fish and Wildlife Service, Office of International Affairs

Aleksander Kolesnikov, Vice Director, Kovcheg LTD, Vladivostok

Tatiana Korobenko, Russian Far East Replication of Lessons Learned (ROLL) Coordinator, Zeleny Dom, Khabarovsk

Yuri Krasnobayev, Director of Zhigulevsky, Zapovednik

Viktor Kryukov, Deputy Director of Development, Natural Resources and Raw Material Industry Development, Administration of the Khabarovsk Krai

Alexander Kulikov, Chairman, The Wildlife Foundation, Khabarovsk

Andrey Kushlin, Senior Foresty Specialist, Europe and Central Asia, TheWorld Bank

Alexandr Laptev, Director, Lazovsky State Nature Reserve, Lazo, Primorsky Region

Earl Lawrence, Director, Office of Social Sector Restructuring, USAID/Russia

Anatoly Lebedev, Chairman, Nongovernmental Organization, Bureau for Regional Outreach Campaigns, Vladivostok

Ray Lewman, USAID/Russia

Olga Likhachova, Director, ISAR-Russian Far East, Vladivostok

Inna Loukovenko, Development Assistance Specialist, USAID/Russia

Andrey Malyutin, Director, Far Eastern Federal Marine Reserve, Institute of Marine Biology, Russian Academy of Sciences, Vladivostok

Alsamazyan Manana, Executive Director, Internews

Alexander Martynov, Strategy Coordinator, Russian Biodiversity GEF Project

Vadim Medvedev, Program Officer, Partnerships and Training Division, IREX, Moscow

Alex Moad, U.S. Forest Service

Rafail Narinsky, Project Management Specialist, USAID/Russia

Steven Nelson, Program Manager, Ecotourism Development Program, World Wildlife Fund (WWF), Russian Far East, Vladivostok

Peter Newton, Head of Environment Unit and GEF Programme Coordinator

Charles North, Chief, Office of Program and Project Development, USAID/Russia

Aleksey Pazhenkov and Irina Pazhenkova, Volga-Urals Ecological Network Support Centre, Togliatty

Stephan Pelliccia, Deputy Director, Office of Economic Policy Reform, USAID/Russia

Kerry Pelzman, Chief, Health Division, USAID/Russia

Valentina Pestricova, Deputy Director, Samara Regional Public Organization, Historical Eco-Cultural Association (Povolzhje), Samara

Vitaly Petrov, Projects Coordinator of Complex Development of Natural Resources of Khabarovsk Territory

Olga Petrova, Director, Zeleny Dom, Khabarovsk

Carol Pierstorff, Director, Environment Program, USAID/Russia

Anne Popoff, Bank Advisor, Small Business Credit Bank (KMB Bank), Samara Branch

Susan Reed, Senior Resident Program Officer, NDI, Samara

Susan Reichle, Director, Office of Democratic Initiatives and Human Resources, USAID/Russia

McKinney Russel, Senior Associate, Management Systems International

Olga Sedykh, Associate Project Director, Microfinancing Program, Foundation for International Community Assistance (FINCA)/Samara

Alexander Sheingauz, Head, Department of Natural Resources and Infrastructure Problem, Economic Research Institute

Evgeny Shvarts, Director of Conservation, WWF Russia

Ilya Ed. Smelansky, Conservation Director, NGO Siberian Environmental Center, Nonvosibirsk

Vassily Solkin, Zov Taigi Environmental Center, Vladivostok

Susan Somach, Investing in Women in Development Fellows Program, USAID/Russia

Vsevolod Stepanitski, Deputy Director, Department of Environmental Protection and Ecological Security, Ministry of Natural Resources

Craig VanDevelde, Project Manager, FOREST Project, Khabarovsk

Lyudmila Vikhrova, Environment Program, USAID/Russia

Andrei Volkov, Environmental Project Coordinator, Institute for Sustainable Communities

Virginia Wheaton, Project Development Officer, Program and Project Development Office, USAID/Russia

Hugh Winn, Housing and Land Market Advisor, USAID/Russia

Alekey Yablokov, President, Center of Environmental Policy

Konstantin Zgurovsky, Marine Officer, WWF/Russian Far East, Vladivostok

ANNEX D

Bibliography

Academy of Science/Ministry of Natural Resources, *Red Data Book of Russian Federation (Animals)*. Moscow, Russia, 2000.

Cushman, S.A. & D.O. Wallin. "Rates and Patterns of Landscape Change in the Central Sikhote-alin Mountains, Russian Far East," *Forest Ecology and Management*, 2001.

Cushman, S.A. & D.O. Wallin. "Separating the Effects of Environmental, Spatial, and Disturbance Factors on Forest Community Structure in the Russian Far East," *Forest Ecology and Management*, 2002 (in press).

Daushev, D., ed. "Report on Financing Biodiversity Conservation in the Russian Federation," Moscow, Russia, 1995.

Dobrynin, A. "Forests and Forestry in Primorski Krai" in Newell, J., Wilson, E., eds., *The Russian Far East*. Friends of the Earth, Tokyo, Japan, 1996.

Food and Agriculture Organization of the United Nations, "State of the World's Forests." Rome, Italy, 2001.

Gordan, D. "Plundering Russia's Far Eastern Taiga," Friends of the Earth, Tokyo, Japan, 2000.

Gordon, D., A. Lebedev , J. Newell, I. Zinovieva, L. Wenming, S. Xiufang, & J. Ford. "Recommendations to Reduce the Illegal Russia-China Timber Trade," 2001.

Greenpeace Russia, "Russia's Nature Heritage." Moscow, Russia, 2000.

Greenpeace and World Forest Watch, "Old-Growth Forests of Russian European North." Moscow, Russia, 2001.

Grigorian, A. et al. "Management Strategy for Russian National Parks," Ministry of Natural Resources, BCC, Moscow, Russia, 2001.

Grigoriev. A. "Socioecological Problems of Russian Forest Sector," SEU/Forest Club, Moscow, Russia, 2001.

Harvard Institute for International Development (HIID) and U.S. Forest Service, "Forest Regeneration in Khabarovsky Krai," study funded by USAID. Harvard University, 1998.

Institute of Natural Resources Management, "Evaluation of the Impact Made by the USAID Assistance Program on Environmental Activism and the Nongovernmental Organization Movement," USAID. Moscow, Russia, 1997.

Khaliy, I. “The Public Guard of Nature and Environment in Russian Regions,” Moscow, Russia, 2000.

Krever, Vladimir, E Dinerstein, D. Olson, & L. Williams. “Conserving Russia’s Biological Diversity: An Analytical Framework and Initial Investment Portfolio,” World Wildlife Fund, Washington, D.C., 1994.

Krever, A., et al. “Biodiversity of the Caucasus Ecoregion,” World Wildlife Fund, Moscow, Russia, 2001.

Ministry of Natural Resources, *Strategy and Action Plan for Wetland Conservation in the Russian Federation.* Moscow, Russia, 1999.

Ministry of Natural Resources, *Management of Zapovedniki System, Policy Guidelines*. Moscow, Russia, 2000a.

Ministry of Natural Resources, *Red Data Book - Legislation*. Moscow, Russia, 2000b.

Ministry of Natural Resources, *Compendium of Legal Acts on Protected Areas*, 3rd edition. Moscow, Russia, 2000c.

Ministry of Natural Resources, *National Biodiversity Strategy and Action Plan*. Moscow, Russia, 2001.

Olson D.M. & E. Dinerstein. “The Global 200: A Representation Approach to Conserving the Earth’s Distinctive Ecoregions/Conservation Science Program,” World Wildlife Fund, Washington, D.C., 1998.

Ptichnikov A., ed. “Forest Conservation in Russia: Analytical Overview,” World Wildlife Fund/Russia Program Office, Moscow, Russia, 2000.

Rosencranz, A. & S. Anthony. “Siberia’s Threatened Forests,” *Nature*, Vol. 335, 1992.

Russel, McKinney, A. Borovikh & O. Zinovieva. “Evaluation of Russian Far East NGO Support Program,” USAID, Moscow, Russia, 2001.

Sheingauz, A. “Forest Fires in Primorskiy and Khabarovskiy Krais: Their Causes and Consequences,” unpublished report prepared for the Institute of Global Environmental Strategies, 1998.

Sobolev, ed. “Ecological Networks in Northern Eurasia,” BCC, Moscow, Russia, 1998.

Sobolev, ed. “Criteria for Ecological Network Development,” BCC, Moscow, Russia, 1999.

Spiridonov, Ozolinsh A.V. “Biodiversity Conservation in the Coastal Zone of the Far Eastern Ecoregion,” unpublished paper, World Wildlife Fund, Vladivostok, Russia, 2001.

State Committee of Russian Federation for Environmental Protection (SCEP), *Biodiversity Conservation in Russia: First National Report of the Russian Federation*, GEF project. Moscow, Russia, 1997.

Taiga Rescue Network, "Last of the Last: The Old Growth Forests of Boreal Europe." Moscow, Russia, 2000.

World Bank, "Russia: Forest Policy During Transition," World Bank Country Study. Washington, D.C., 1997.

World Wildlife Fund (WWF), "Strategy for Conservation of the Far-eastern Leopard in Russia," SCEP-WWF-USAID. Vladivostok, Russia, 1999.

WWF, "Basic Regulations for Conservation Action Plan of Biodiversity Conservation in the Russian Far East Ecoregion on the Basis of Transfer to Sustainable Development." Vladivostok, Khabarovsk, Blagoveshchensk, Russia, 2001a.

WWF/Russia Program Office, "Conservation Action Plan for Russian Far East." Vladivostok, Russia, 2001b.

WWF/Russia Program Office, "Creating SPNA in Priority Ecoregions of Russia," unpublished paper. Moscow, Russia, 2001c.

WWF, "Ecotourism in the Russian Far East: An Assessment Report for Primorsky Krai." Vladivostok, Russia, 2001d.

WWF/Russia Program Office, "Regional Investment Priorities in Biodiversity Conservation in Russian Federation," unpublished paper. Moscow, Russia, 2001e.

Yamane, M. and L. Wen-Ming. "The Recent Russia-China Timber Trade: An Analytical Overview," Institute of Global Environmental Strategies, Tokyo, Japan, 2000.

Yaroshenko, Alexey Yu, P. Potapov, & S. Turubanova. "The Last Intact Forest Landscapes of Northern European Russia," Greenpeace Russia and Global Forest Watch, Moscow, Russia, 2001.

Key Web Sites for Biodiversity Information in Russia

Endangered animals of Russia (Red Data Book), http://nature.ok.ru/

Map catalogue and brief analysis of country-wide information, http://sci.aha.ru/

Ministry of Natural Resources, http://sci.aha.ru/

Russian CBD Clearinghouse Mechanism (links to national report, strategy, and legislation), http://www.rcmc.ru/chm/

Greenpeace Russia, http://www.greenpeace.ru/gpeace/

WWF Russia, http://www.wwf.ru

Ecoline (links to NGOs and information), http://www.ecoline.ru/